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BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 6 1943

TREATMENT OF GUNSHOT FRACTURES OF THE LIMBS

BY

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General Considerations

The experience gained during eighteen months of the present war has revealed the advantages and disadvantages of the various methods of treatment for gunshot fractures of the limbs. From these preliminary data the results of therapy can be assessed, and general rules can be laid down for the treatment of these fractures, both in the field and at base hospitals.

The methods used are based on three main therapeutic factors: wide surgical excision of the wound; adequate local and general use of sulphonamides; prolonged fixation in plaster. These principles are indisputable, and surgical excision should not be replaced by chemical sterilization or the introduction of packing. In addition the application of dry sulphonamide powders is immeasurably better than the use of other antiseptics or repeated irrigations, and allows adequate splinting with plaster, which is essential for complete immobilization of the limb. This immobilization is of paramount importance in the case of gunshot fractures, especially of the femur, not only for procuring adequate union of the fracture and healing of the wound but for the survival of the limb and even the patient. Not only is immobilization in plaster the most important factor in the treatment but it is most suitable for the transport of the patient over long distances.

Immobilization by extension has undeniable merit. Its great advantage is its application to almost any case of fracture or dislocation, and by it satisfactory reduction can be obtained even after delay in therapy; but even in the treatment of closed fractures such procedures are impossible when the patient has to be moved repeatedly from one place to another. The amount of time and trouble expended in the autumn months of 1941 on moving patients to and from air-raid shelters was enormous and the effectiveness of treatment was greatly impaired. In addition in times of stress it is difficult, if not impossible, to use methods of extension at advanced casualty stations, and by the time such patients have reached a base hospital union is so complete that correction by traction is no longer possible. Moreover, with infected fractures it is difficult to secure adequate rest for the patient, and the healing of the wound and fracture is impaired by repeated dressings and movement in bed. This not only retards recovery but jeopardizes the final result, and the more rapidly healing occurs in both soft tissue and bone the greater preservation of function there will be. On the other hand, the slower the resolution of the infection the more scar tissue there will be, and final function will be less, particularly in the case of the knee-joint.

We do not consider it possible to procure adequate immobilization of the bone fragments and soft parts with hinged splints and other forms of apparatus; in fact, these defects are present to a greater degree with such apparatus than with skeletal extension, since they cannot be fitted securely enough and are apt to become displaced. Plaster-of-Paris bandages are applied direct to the skin and immobilize the whole limb, thus securing maximum rest and allowing easy transport; the nursing is thereby simplified and the work of the surgeons lightened.

Plaster Fixation

There are, however, some important defects and drawbacks in this method of treatment, and we would point out its limitations for general application. The three main drawbacks are: (1) the defective position of the bone fragments may not easily be seen and serious shortening of the limb may result; (2) contractions and stiffness of the joints may occur; (3) sepsis may progress unnoticed. I shall consider each of these drawbacks separately.

Shortening of Limb.—Should an unreduced fracture with serious displacement and shortening occur, it is not the fault of the method but of the surgeon who allowed this to happen during application of the plaster. In cases of gunshot fractures displacement of the fragments and shortening are as a rule slight, and good alignment is usually possible in any part of the limb after the excision of the wound. This, however, does not apply to fractures close to joints, in particular the knee-joint. In most cases a good position is obtained by manual reduction before the plaster-of-Paris is applied, but 20 to 25% of gunshot fractures of the femur show considerable deformity which cannot be eliminated in this way; in such cases a light extension apparatus with a screw extension is required.

The application of plaster-of-Paris necessitates a certain skill, and the successful use of an extension apparatus requires a knowledge of orthopaedic surgery, though not more than the use of weight extension.

There are still some cases in which one cannot avoid anterior displacement, and sometimes in order to avoid shortening it is necessary to insert a pin as well as using plaster. Such a method of forced extension and plaster in combination (as used by Winnett Orr) sometimes admits of correction of deformity even up to periods of three to six weeks after the injury. Even in such cases fixation in plaster has many advantages over skeletal traction by weights, as in the latter the amount of weight required is enormous and the length of time in bed much prolonged; in addition evacuation from one hospital to another is facilitated. Consequently the first alleged defect does not in fact exist.

Contracture and Stiffness of Joints.—The statement that plaster fixation causes contracture and stiffness of joints is wrong; immobilization by this means causes harm neither to joint surfaces nor to the healing process; the real cause of the contracture is scarring in the muscles as a result of injury and infection, and the adhesion of damaged muscles to the site of fracture and callus. In injuries to the femur the wound is generally in the quadriceps femoris, and this explains the frequency of extensor contracture of the knee-joint. All along, the quadriceps lies close to the bone, but the flexors are further away from the femur and thus are less often involved, consequently flexor contracture is less common.

I would also mention that gunshot wounds of the leg are treated in the same way. An extensor contracture of the knee-joint never occurs although immobilization may last for months, and this method of fixation cannot be blamed for the impaired function of the knee-joint, but indeed seems to be the best means of treating both the fracture and the muscle injury, and securing the least amount of deformity.

Suppuration beneath Plaster.—The most serious disadvantage alleged against plaster fixation is the impossibility of seeing the extent of suppuration under it. This, it is suggested, gives rise to the risk of neglecting appropriate treatment for the sepsis at any given time. Such fears are groundless in many respects; the degree of infection may be judged by the general disturbance, both subjective and objective, as well as by direct observation of the wound, and frequent dressings following wound examination

are harmful. Moreover, plaster bandages have proved themselves to be very absorbent. A great drawback is the odour, which is a small factor when it is compared with the advantages this method affords.

Procedure in Plaster Fixation

Anyone, in fact, who uses this method for gunshot fractures will never wish to return to any other. The condition of the wound and the granulation tissue which develops under the plaster are remarkable. I will not now endeavour to explain the wonderful reparative power of the tissues under such treatment, but will merely point out that no other method produces such rapid sterilization of wounds, granulation of cavities, and rapid epithelization. It should be emphasized, however, that the plaster must only be put on after wide excision of the wound and removal of all dead and damaged tissue. If this is not done, whatever the method of treatment used fatal infection may occur; but, even under adverse conditions when such treatment is impossible, no other method has given results as good as immobilization in plaster. In this method all surgical procedures preparatory to fixation must be suitable for the application of plaster over them. The extent of the operative procedures varies according to the time of the operation after the initial injury—that is, in relation to the degree and spread of infection.

Early Cases.—If operation is performed early and the wound is not yet clinically infected—that is, on an average within six to eight hours—the procedure is confined to the removal of all large foreign bodies and blood-clot, and a thorough excision of all devitalized tissue. Bone fragments need much care, and only loose fragments should be removed. Bone still adherent to the periosteum or to muscle must be preserved. In such cases this operative procedure allows of relative sterilization of the cavity. Excision of the surrounding muscles should be sparing and only such muscular tissue be removed as is in danger of necrosis. After the excision no stitches should be used either in skin or in muscle, and the wound must be freely opened throughout to allow of free drainage of exudate. Hence there is no great need for accessory drainage through undamaged tissues. Next the whole cavity must be liberally filled with a sulphonamide powder, carefully ensuring that no part is missed. The limb is then encased in plaster over the open wound, no dressing being applied, and the healing of the wound should proceed without gross infection.

Cases in Later Stages.—In gunshot fractures of the thigh which are brought to operation at a later stage there will be found various degrees of infection. Some cases, though 24 to 36 hours may have elapsed from the time of trauma, are afebrile, show little clinical evidence of infection, and the discharge from the wound is not grossly purulent and has no smell. Other cases show purulent discharge, though the general condition of the patient is good and the infection appears localized. Both these types of case, if it be found at operation that the process of suppuration has not spread far beyond the wound, can be treated in the same way as the first group.

Suppurative Cases.—The third main group consists of cases which show gross infection spreading far beyond the wound itself. Under such conditions a wide excision to allow free access to the site of the fracture is absolutely necessary so that drainage is free. Lateral drainage may be needed in some cases if the wounds do not easily permit dependent drainage. The operation is designed to produce a funnel-shaped cavity with the summit at the site of fracture and the wide base on the surface of the thigh, and this should be established for both entrance and exit sites of the wound.

(I should here emphasize the preparatory cleansing of the wound with water and soap, which is widely used by English and American surgeons. We consider that adequate use of soap and water around and in the wound is of the greatest importance, and I will describe its use in detail at a later stage.)

This third group of cases consists of patients with severe suppuration at the site of fracture and spreading infection beyond the damaged area. They arrive for operation from the fifth to the fifteenth day after the fracture, showing not only local suppuration but severe signs of toxaemia. Until quite recently it was doubtful whether such cases should be treated by wide excision of all necrotic material or whether it was advisable to leave the wound completely alone. After many operations it was found possible to put the limbs in plaster and treat them in the same way as the previous groups, and there is now no question as to the right course. The technique of wide excision down to the site of fracture as previously described is of extreme importance, as is adequate use of a sulphonamide powder, both locally and by mouth. In such conditions immobilization in plaster is irreplaceable by any other means of fixation. In the present war, experience has shown that the majority of gunshot fractures have arrived for treatment when infection is far advanced. It has therefore been a matter of great importance to evolve this technique and to make available our present knowledge to all doctors dealing with Service cases.

Pre-operative Treatment

When the men first arrive at the hospital their general condition must receive attention. Many have had long journeys over bad roads; they are often physically exhausted, worn out by pain, and suffering from exposure to cold. They frequently show marked signs of shock and haemorrhage. Many have not slept for several days and nights, and some are starving. Immediately on their arrival, therefore, general treatment must be started. The application of warmth is of great importance, and this factor is often not sufficiently appreciated: operation may have to be postponed for several hours, during which time they are warmed and their shock is treated. Hot drinks such as sweetened tea, spirits by mouth, and the application of hot-water bottles and warm woollen or fur blankets often improve their condition enormously, and special resuscitation departments should be established in all base hospitals. Such departments have proved of inestimable value in the preparation of the patients for adequate surgical treatment. Blood transfusion or the infusion of glucose or saline solutions may be required in a large number of cases, especially in conditions in which the blood pressure is much lowered, and after considerable blood loss.

Anaesthesia

The problem of anaesthesia must be considered in detail. It would be ideal if anaesthesia could be induced immediately after injury—that is, before first aid is applied—and continued during transit to hospital. There is no doubt that the administration of morphine, 10 mg., before first aid, and again before removal to hospital, would considerably ease the patient's discomfort and lessen the inevitable shock. This administration of morphine may again be necessary before surgical procedures are undertaken; but, if conditions permit, it is advisable to treat the shock and to undertake measures such as radiography and nursing procedures before starting any operative procedure. The operation will need complete surgical anaesthesia, and this will have to be maintained during the application of the plaster while the patient is on an extension apparatus or an orthopaedic table. For the latter morphine may suffice. The time available and the order in which these procedures are undertaken will determine the mode of administration of morphine and the dosage. Thus, if time allows, subcutaneous morphine given a quarter of an hour before will suffice, but if anaesthesia is required urgently the intravenous injection of 1.5 to 2 c.cm. of a 1% solution of morphine, or, better, the Kirschner mixture (morphine hydrochloride 0.25 g., scopolamine hydrochloride 0.025 g., narcotine hydrochloride 1.25 g., ephedrine hydrochloride 0.25 g., and 0.75% sodium chloride 100 c.cm.) will give considerable analgesia and even sleep. If the operation requires the administration of a general anaesthetic this preliminary medication will aid in the induction and reduce the amount of general anaesthetic required, and, moreover, will lengthen the anaesthesia so as to allow ample time for subsequent drying of the plaster.

Local anaesthesia in cases of gunshot fractures of the thigh has a very limited application. There is no doubt that the injection of local anaesthetic into the fracture site and surrounding haematoma is of great value if it can be used, but in the conditions under discussion it is sometimes very difficult to ascertain the exact site of the fracture without prolonged and careful examination, which is often impossible, and certainly undesirable. Secondly, with open fractures it is difficult to maintain the solution of local anaesthetic at the local site. In a few cases of closed fracture it may be of some use. Local anaesthesia for the excision of a wound is open to serious

objections. The injection at the local site is difficult, and in consequence it is often impossible to ensure anaesthesia. It is also often impossible to determine beforehand how extensive the excision will have to be, and so during the operation there may be constant delays while fresh areas are anaesthetized in order to complete the operation successfully. Moreover, the infiltration of the local anaesthetic conceals the natural appearance of the muscles and makes it difficult to determine how much muscle tissue has been damaged by the injury and in consequence how much muscle should be excised. We consider, therefore, that the use of local anaesthesia not only impedes the operative procedure but, in open fractures, restricts the accuracy with which one can assess the extent of the damage and infection in the tissues. There is yet another consideration. The patient after operation is in an uncomfortable position for a considerable time while the plasters are setting, whether he be on some form of extension apparatus or on an orthopaedic table, and this position is exceedingly irksome and tiring, particularly to patients who are exhausted even before the operation is begun. Under these conditions the surgeon may be tempted to allow the removal of the patient before the plaster is firm; this would entail considerable risk of spoiling the plaster, and the whole process might have to be repeated from the beginning. It may often prove that, even after local anaesthesia, general anaesthesia would be required during this stage and the benefit of the former lost. Finally, local anaesthesia for such complicated operations is time-consuming, and under conditions of war it is unfair to delay so long, as many other operations of equal urgency may thereby be postponed, with grave risk to the waiting patients.

Ether, with preliminary administration of morphine, provides an excellent and simple method of anaesthesia and allows complete freedom for the operator, both in the extent of the operation and in the time required. There is, of course, no reason why local block in large nerve-trunks with novocain should not be employed in addition if thought necessary. Ether should not, however, be used if the patient is suffering from bronchitis, which is not infrequent during the autumn months. It is also necessary to take adequate precautions in case of fire.

Evipan intravenously is an excellent anaesthetic, but for prolonged use the services of a skilled anaesthetist are required. This is overcome to some extent by the use of a 2% solution instead of 10%; it can be given up to 200 c.cm. by subcutaneous injection. It is useful to bear this in mind if general anaesthesia is required during an operation begun with a local anaesthetic.

None of the previous methods offers such advantages or secures such adequate relaxation as spinal anaesthesia. This allows the most satisfactory conditions for reduction of the fracture, and adequate time for examination of the tissues and excision of the wounds and for the application and drying of the plaster. The great drawback of this method is the fall in blood pressure induced. This makes it unsuitable for patients suffering from shock and also for many others who have had considerable haemorrhage, and, since in the cases under discussion one or both of these conditions are often present, this method, although very satisfactory when used, may not be possible. Spinal anaesthesia is therefore of limited value in the early stages at casualty clearing stations, where shock and haemorrhage occur with such frequency. However, during the last 18 months experience has shown that many gunshot fractures of the thigh arrive in hospital at a late stage, and, although there is often considerable infection in the wound, with signs of toxaemia, the initial shock has been overcome and the blood pressure is stable. Such patients are suitable for spinal anaesthesia. In fact, in many the condition definitely improves after induction of spinal anaesthesia, and the main difficulty encountered is the movement of the patient in preparation for the lumbar puncture. Great care must be taken in the movement of patients with fractures high up in the thigh, but we find it is possible to move them in most cases. In the last 300 fractures of the thigh which passed through our clinic we were able to use this form of anaesthesia in all cases, and I have had no difficulty with it even in front-line hospitals. 1 c.cm. of 1% nupercaine (percaine) and the Soviet preparation sovkain are excellent preparations. The anaesthesia takes place within a few minutes and lasts for three to four hours. This allows the patient to be moved on to the extension apparatus without pain and also admits of adequate fixation or extension of the limb painlessly. After fixation in the extension apparatus the patient is washed with soap and water, and in the same position such operative procedures as are necessary are performed; following this, the plaster is applied. During the whole procedure the anaesthesia remains and there is no complaint of discomfort from the patient, and adequate time is available for the hardening of the plaster. If neither nupercaine nor sovkain be available, novocain, tropacocaine, or stovaine may be used instead in doses of 1.5 to 2 c.cm., but the anaesthesia will be of shorter duration. With the use of any of these spinal anaesthetics it may be necessary to inject subcutaneously 1 c.cm. of 5% ephedrine if an undue fall of blood pressure occurs.

During the last 43 years spinal anaesthesia has varied greatly in popularity. There is no doubt that the successful application of this method calls for considerable skill and experience, particularly if high anaesthesia is required, but lumbar puncture in the usual situation between the 2nd and 3rd or 3rd and 4th lumbar vertebrae, and the injection of the anaesthetic mixed with 1 to 2 c.cm. of cerebrospinal fluid, are adequate in these conditions and the patient placed again in the horizontal position. Although, therefore, spinal anaesthesia is considered inapplicable in cases with shock or following recent haemorrhage, it is of immense value during the treatment of open fractures of the thigh once shock has been relieved, even if there is well-marked infection of the wound.

Position of Patient and Cleaning of Wound

The patient should not be removed from the stretcher until anaesthesia has been induced. He should then be placed immediately on to the extension apparatus, and extension applied to both legs, with a narrow support under the sacrum. This position allows adequate access to all parts of both limbs. The first procedure is thorough washing of the skin not only of the operation field but of the whole limb. The entire area should be washed thoroughly with soap and water; any shorter method, such as painting the skin with alcoholic solution of iodine, is grossly inadequate. Some difficulties may be met with during this procedure. A fresh fracture needs much care during the cleansing, and the presence of other wounds on the limb requires special attention. We do not think it adequate to use soap and water on gauze or cotton-wool; the whole area should be scrubbed with a soft brush. By means of this the cleaning is done better and much more expeditiously. It is often advisable to protect wounded surfaces during this cleansing procedure. In suitable situations this can be done by packing with dry sterilized gauze, but in many cases it is advisable to close the wound temporarily with Michel's clips. This permits of more rapid cleansing of the skin surfaces. With skilled assistance washing can be completed in from 5 to 10 minutes, and this time includes shaving the limb if necessary. The limb is then washed with water and dried with a towel or with gauze and alcohol, and the whole operation field is painted over with iodine, the limb being isolated by means of sterile towels and any temporary stitches or clips removed. There are a few sites of injury which cannot be approached with the patient in the same position—mainly cases with wounds in the buttock and perineum. Such patients should be operated on first in the prone position, and only after completion of the operation there should they be transferred to the extension apparatus for the rest of the examination and treatment. We have, however, found that in many cases these apparently inaccessible sites are easily accessible with an operation table that admits of lateral inclination of the table itself. This has been found possible by fixing the extension apparatus to the operating table. We have designed a simple wooden stand which can be given a lateral inclination of 35 degrees. We have also designed a new model of a portable apparatus with a screw extension for both legs. These two designs form a good orthopaedic table for all the operative procedures on this type of injury.

Treatment of Recent Open Fractures of the Thigh

Even in extensive wounds with gunshot fractures of the thigh operative procedures which can be done within the first 8 to 12 hours must have as their purpose complete and thorough mechanical cleansing so that the whole wound and site of

fracture should be made sterile. To achieve this all foreign bodies must be carefully removed from the wound and a diligent search made for even the smallest fragments that may have penetrated the surrounding tissues. All damaged tissue must be removed and all blood clots, so far as is possible, taken out. This may entail a wide excision of the tissues and the removal of bone fragments. The only bone fragments which should be left are those still adherent to their periosteum. One should then take great care to ensure haemostasis. Finally, the cavity which is left should be of adequate size and situation to allow easy escape for the discharge of exudation into it.

Operative Technique of Recent Fractures

The excision of fresh wounds should be done under aseptic conditions and the operation should be carried out with strict precautions; there should be available a double set of instruments and gloves, so that a fresh set may be ready for use during the clean part of the operation when the infected tissue has been removed. The question of the excision, or otherwise, of various tissues in the wound depends on their naked-eye appearance. The light available must therefore be adequate and access to the deeper parts of the wound must be wide, so that this visual examination can be effectively made.

The approach to the fracture must then be decided. In the majority of cases adequate inspection and the provision of free dependent drainage can be procured through the wound sites. If this is not easily obtained the fracture should be explored and drained through an additional incision in a suitable area.

In cases of established infection quite small excisions of the wound may have to content the surgeon, because it may be necessary to establish lateral drainage quite apart from the main direction of the wounded surfaces; but with recent wounds this is not the case. In these circumstances there is no need for the preparation for drainage through the wound, and wide excision can be performed with impunity. There may, however, arise the question of lateral access to the fracture in order to allow adequate inspection of the tissues. If the wound cannot be extended owing to the proximity of important structures, then even with recent injuries it may be necessary to explore from another direction; such exploration should always be made from the lateral aspect of the limb. This should only be done in cases of strict necessity. In addition we believe that fresh wounds should not be stitched either in the muscles or in the skin. It is assumed that adequate treatment at this stage will prevent infection in the wound, and we need not discuss here the question of treatment of sepsis.

The amount of tissue removed depends on surgical experience and requires expert judgment. First the skin wound is fully excised; this is performed in such a way that the skin surrounding the wound can be dissected intact. From one end of the excision the skin is then dissected off with a scalpel and the subcutaneous tissues inspected; all damaged subcutaneous tissue is excised with the skin. The deeper layers of tissue are removed along with the deep fascia. Extensive removal of deep fascia is often necessary to permit adequate inspection of the muscles underneath. The opening in this deep fascia should be elliptic, with its long axis in the long axis of the skin incision, and its length only slightly less than the length of the skin incision and with the deeper-wounded structures in the centre. The incision in the deep fascia is made with a scalpel, through which the tips of Cooper's scissors are introduced; by means of incision with these scissors a wide opening in the fascia can be made and the muscle brought into view, and the wounds in the muscle can now be inspected.

When the skin and infected superficial and deep fascia have been removed the dirtiest stage of the operation is completed; fresh instruments and gloves should be used and adequate haemostasis must be secured in the freshly cut surfaces. Then all damaged and injured muscle tissue must be excised and wide access to the fracture allowed. All loose fragments and blood-clot are removed, and care must be taken to ensure that suitable drainage from the fracture site is possible through this aperture, making the wound, so far as practicable, cone-shaped, with its summit at the site of fracture and its base lateral or posterior in the limb. Sometimes this is difficult owing to the direction of the wound, but in most cases with an entrance-and-exit wound one or other of the wound tracks can be chosen for dependent drainage. Thus, with the wide excision of skin, wide aperture in the aponeurosis, and the excision of adequate muscle tissue, not only is infection removed but adequate drainage is established. During the excision the muscle contracts, and therefore this is best performed with scissors, which tend to hold it as they cut through, whereas the use of the scalpel is made difficult by the retraction of the muscles as they are cut.

In deep cavities it is often difficult to distinguish the edges of wounded muscle the torn ends of which have retracted in all directions. In these circumstances the wound cavity must be stretched widely open and the main direction of destruction in muscle defined. The surgeon can then see more clearly which muscles are involved and whether their ends have retracted. If this be done systematically, from the more superficial muscles down to the most deeply situated, adequate inspection becomes possible and the surgeon can remove not only destroyed muscle but muscle that may not survive owing to bruising or disturbance of blood supply. Normal muscle tissue can be recognized by the following characteristics: First, a normal colour; muscle which is dying has a dull colour, has lost its gloss, and is becoming bluish in appearance, the colour change resembling the difference between arterial and venous blood. Secondly, fresh blood exudes from the surface of a fresh incision into normal muscle, showing that the blood supply is intact. Thirdly, when the muscle fibres are cut they contract if their nerve supply remains intact. On these three signs it can be decided whether the muscle is sufficiently devitalized to be removed or not. While adequate excision is essential we must remember that all tissue, particularly muscle tissue, must be preserved if at all possible, as muscles cannot regenerate, although the remaining tissue may hypertrophy. Although this point should be emphasized it must not prejudice the principles of the excision of doubtful tissue and adequate drainage. Thus it would be better to remove a part of some muscle than to endeavour to preserve necrotic tissue, and it is better to make large drainage apertures through healthy tissue for the removal of blood-clot and damaged tissue than to risk leaving such at the bottom of an undrained cavity. There are, however, some limitations to the extent of the excision of tissue. It is unjustifiable to expose extensive areas of either large blood vessels or nerve trunks, owing to the grave subsequent risk of haemorrhage or nerve complication. It is therefore necessary sometimes to preserve some damaged tissue in the vicinity of such structures. If these structures intersect the wound cavity an endeavour is made to clean the cavity around them, and then to protect them with a muscle-covering produced with two or three fine catgut sutures over them.

Bone fragments present another problem. We have already made it clear that any loose fragments must be removed and a careful search made to ensure that none are left behind, but that fragments of periosteum must in no circumstances be removed, though they may need to be replaced and the sharp edges may have to be rounded so long as the periosteum connexion is not damaged.

It is very difficult to give any definite indications with regard to the removal of fragments of bone with a dubious connexion to soft tissue. One should be careful to remove doubtful fragments so long as the amount removed does not prejudice bony union in the fracture. Provided that the rest of the operation has been done properly, it is unusual for an occasional necrotic fragment to produce a worse result than the formation of a sequestrum, which can be removed later. If, however, it be found impossible to perform adequate excision of the soft tissue, then it is imperative that all doubtful fragments should be removed and that great care should then be taken to leave undisturbed even the smallest portions of periosteum.

This procedure completes the operation. After this, haemostasis must be secured, and must be complete. Even the smallest bleeding vessel should be ligatured with fine catgut. The whole wound should be powdered with sulphanilamide or, better still, with a mixture of sulphanilamide and sulphathiazole. The wound should not be sutured. The plaster is now applied as previously described without any dressing or padding under it.

Operative Procedures in Late Cases of Gunshot Fractures of the Thigh

In this group of cases there are various types. Some do not show evidence of infection, but are assumed to be infected because of the long delay between injury and treatment. Such cases can often be treated as were those in the previous group. There are others in which wound infection is apparent but is confined to the local area. Such a series also includes patients who have had an excision at an earlier stage and have been left with packing in the wound. For patients with local infection the treatment as previously described may be possible still; but if the infection is more widespread, then treatment must be different. The operation in this case is designed not for wide excision but for adequate inspection and cleansing of the site of fracture and the securing of adequate drainage from the wound cavity. In this connexion the situation of the wound is of great importance. Thus wounds on the outer side or on the posterior surface of the limb frequently permit of adequate dependent drainage, whereas wounds on the interior or anterior surface of the limb are often quite unsuitable not only for drainage but even for adequate inspection of the damaged tissue. Thus it is sometimes necessary to explore through an incision on the outer side of the limb and to establish drainage from the same direction. In these cases I would like once again to emphasize how important is the mechanical cleansing of the wound cavities and the surrounding tissue with soap and water, and how essential it is that the procedure previously described for cleansing the tissues should be undertaken in every case. The water must be sterile—boiled if necessary. The best soap to use is liquid green soap; ordinary soap, however, can be used in 0.25% carbolic, and such a solution, if made under unsuitable conditions, should be sterilized by boiling. All parts of the wound should be washed, including the actual site of fracture; and plenty of water should be used, so that mechanical removal of foreign bodies will take place at the same time. At the actual site of fracture the bone fragments must be washed very carefully, taking precautions against tearing any fragments of the periosteum. After long-continued cleansing in this way the whole wound is irrigated and washed carefully with normal saline. The wound is now re-examined and all the pockets and wound surfaces are irrigated with normal saline until they appear clean and the saline from the wound itself runs clear. As an example, in a splinter fracture with laceration the washing of the wound surfaces and the surrounding tissue should be continued for 10 to 15 minutes, and something like 5 litres of solution will be required for irrigation. This last procedure is not only valuable for the cleansing of the wound but makes the operation simpler and the recognition of damaged tissue easier.

It has been stated that these procedures are unsuitable because of the time involved for use in the front line. We would say that the additional use of the surgeons' time is adequately justified by the results, and in addition the actual operative procedure is rendered much quicker by the improved conditions. Another objection is the large quantity of sterile water, liquid soap, and salt solution required; and it is true that sometimes, with a large influx of such patients, this may present a serious problem. By adequate preparation beforehand such problems of supply can be overcome—on occasion sea-water has been used instead of saline with very good results; and all the difficulties and trouble are adequately compensated for by the improved condition of the patients. We believe that the application of this method is most valuable even in cases of gross infection: although it is obvious that one cannot sterilize gross infection by this means, it will wash out much foreign material, which will aid in the operative procedures, and remove the accumulation of pus and exudate. Indeed, in such cases it is often much more important, as only by so doing can one proceed to distinguish macroscopically between damaged and undamaged tissue. We do not mean to suggest that it is impossible to carry out the operation without this washing, but we maintain that it is made very much easier. We also feel that it is advisable after the operation to carry out irrigation again with saline before the application of sulphanilamide powder, to make sure that no tissue has been left which should have been removed. If additional incisions have proved necessary for drainage, irrigation should be carried out through such an aperture as well. If the sides of the wound are gently wiped with soft gauze under the stream of saline it is surprising how much tissue and blood-clot are washed away which would normally be left in the wound cavity as necrotic material.

Operative Procedures for Severely Infected Wounds

In the previous world war the problem of gross sepsis in wounds was not solved, and even up to the end of that conflict most surgeons refrained from active surgical intervention in the presence of severe infection. Such wounds, and particularly gunshot fractures, are now being operated upon even after a long delay, and are treated in the same manner as we have described with recent ones. It appears that it is less dangerous to treat them in this way than to leave necrotic material in the wound to separate naturally. It was feared at first that damage to the defensive barrier which had been formed against infection would cause an increase of both the local sepsis and the general toxaemia. There is no doubt that the operative procedures described will remove this defensive area in many places and damage it in others, and will certainly introduce a large fresh wounded area where the struggle between the body defences and the bacterial infection will proceed; the operation will also often result in an increase in the toxaemia: all these things do in fact take place, but the increase in the general reaction has not proved serious, and the local condition has not deteriorated as might have been expected. The mechanical cleansing of the wound and the removal of dead tissue improve the defences of the body and the condition of the wound itself; and the surgical cleansing of the wound must be carried out most thoroughly—that is, on the completion of the operation all necrotic and infected tissue should have been removed. It would be ideal if all the excisions with the scalpel and scissors were made through undamaged tissue; this is rarely achieved in grossly infected wounds, particularly in the thigh, as in such cases the anatomical difficulties often render it impossible and the removal of fascial layers and large areas of muscle would make too great a sacrifice to warrant such a procedure. Under these conditions one must secure adequate drainage for the sepsis which cannot be removed surgically. We conclude that operative procedures can be undertaken with great advantage in cases of gunshot fracture of the thigh with gross sepsis. Excision of all infected or necrotic tissue should be undertaken if possible, adequate drainage must be established in either case, and sulphonamide preparations should be used both locally and orally; and, finally, complete immobilization of the limb should be procured by means of closed plaster.

We think that drainage is so important that details of the procedure are worthy of mention. There are three basic requirements: (1) incision and approach to the site of fracture from the lateral aspect of the thigh through the vastus lateralis muscle; (2) funnel-like excision of this muscle with the apex at the seat of the fracture; (3) suturing, if necessary, of the skin edges to the deep fascia.

I have previously suggested that the lateral aspect of the thigh is the site of election for the approach to the fracture, as it allows of adequate drainage, there are no large structures which impede one's approach, and it can be used throughout the length of the thigh from the trochanter to the external malleolus of the femur; only in cases of approach to the head or neck of the femur would it be necessary to extend the incision into the gluteal muscles. Only in exceptional circumstances, with wide destruction in the lower third of the femur, would the biceps femoris need to be incised. If the actual wound, either of exit or entrance, is on the lateral or the posterior aspect of the limb, it may be suitable for use as drainage without further incision. If the wound is not in this situation, then drainage must always be done from the lateral aspect. During the lateral approach great care should be taken at the actual site of the fracture, but drainage from the fracture site must be adequate, and small exposures are to be deprecated. This large exposure has the additional advantage of permitting adequate inspection. Muscle layers, however, adjoining the bone fragments must be carefully preserved at both ends, as the blood supply to the periosteum mostly passes through this site. Muscle must therefore never be

detached from the periosteum or from the ends of the fractured bone, and excision of muscle at this site must always be minimal. It is perhaps advisable at this stage to emphasize again that no periosteum should be removed; and even if some doubtful bone fragments insecurely attached to periosteum are taken away, the small, even minute, fragments of periosteum should be retained.

The object of suturing skin edges to deep fascia is to prevent premature closing of the wound cavity with consequent pocketing. The skin edges are sutured to suitable deep fascia, or often to muscle, by means of two or three catgut sutures on each side of the wound cavity. The elastic pull of the skin then tends to retract the deep muscle layer and thus prevent occlusion of the cavity deep in the limb. This suturing should not be undertaken until the wound has been amply treated with sulphanilamide powder. It is essential to prevent any infection under the skin flaps, and this is also guarded against by the use of catgut, which will absorb rapidly and enable the skin edges to retract later. This usually occurs in 7 to 12 days, during which time the success of the operation is being decided. This procedure also seems to reduce the depth of the wound and the depression of the scar afterwards.

Conclusions

I have described the aims and technique of the operations undertaken for gunshot fracture of the femur at various times after occurrence of the injury and with varied degrees of infection. It has been shown that when operation is undertaken within a short time the procedure is strictly confined to the removal of foreign material and damaged or devitalized tissue. In such cases additional drainage is seldom required, but the wounds should not be sutured. In treatment undertaken at a later time after the injury the method of choice is wide excision of infected and necrotic tissue and great care in mechanical cleansing, followed by free drainage.

I have concluded that adequate excision of muscle, so as to produce a funnel-shaped aperture for drainage, is of great importance. Adverse criticism has been expressed of this point of view. It is stated that this unnecessarily wide excision would cause an increase not only in the extent of muscle contracture but in the loss of power in the limb as a whole, and that it would increase the devitalization of the bone fragments with the risk of non-union of the fracture. I have never suggested that the excision should be excessively wide, and have pointed out the dangers of the removal of muscles with arteries traversing them; in consequence I have advocated the lateral approach through the vastus lateralis. In 350 cases of such fractures with gross sepsis upon which I operated I have not had one single case of non-union of the fracture. In addition, owing to the use of incision through the vastus lateralis and the technique of suturing the skin to the deep tissue, we have not seen defective movement of the limb as an after-result which can be attributed to post-operative defect in muscles.

I would like to remind readers that the first task in modern warfare in the treatment of a wounded man is to prevent the loss of the man's life and limb by infection. We believe that this is mainly achieved in the case of gunshot injuries of the thigh by the operative procedures described, prolonged immobilization in plaster, and the use of local and oral sulphonamide preparations. We admit that the procedures described are often tedious and time-consuming, and we have been told that such treatment cannot be used when the number of patients is large. We believe, however, that the methods described are irreplaceable by any other method of therapy, and by their means 95% of our patients with these injuries have their lives and limbs saved. Other methods, and splinting, though useful for transport, are unsuitable for immobilization treatment over any length of time and cannot replace the use of plaster. Inadequate excision and temporary splintings could only be justified under conditions of great stress, to enable the patient to be transported from the front line to hospital; we do not think that any considerations of time should weigh when the patient's life and the ultimate fate of the limb are at stake.

In view of the criticism that these procedures are prohibitively time-consuming I would like, in conclusion, to give an average estimate of the times which the various procedures take under our conditions.

The patient is put on the orthopaedic table, a spinal anaesthetic is given, the extension apparatus is applied, and the limbs are thoroughly washed. This work is mainly undertaken by orderlies, and the time required is approximately half an hour. The surgeon is helped by one assistant or an experienced sister, and there is a nurse attending to the instruments. If the knee-joint requires opening and the wound has to be dealt with as described, the whole procedure would take approximately 24 to 25 minutes. If the wound involves the femur above the great trochanter, and particularly into the hip-joint, the procedure will take from 40 to 45 minutes. If, however, the fracture is in any part of the diaphysis of the femur the work is easily completed in half an hour; thus the average length of this part of the operation is 30 minutes. The third part of the procedure—that is, the application of the plaster—is performed by trained nurses, usually two with a third preparing the bandages. The application of plaster, including a hip spica, takes 20 to 25 minutes, and 10 minutes is required for additional drying before the patient is moved. Thus three tables allow of a continuous flow of wounded. Each of these stages averages about 30 minutes, and each patient therefore requires one and a half hours; but one patient is dealt with each half-hour, and during a 16-hour working day, with one hour for dinner, it is possible to attend to some 25 to 35 wounded men. This is the maximum figure, but has been easily attainable under such a system. The team consists of 9 people, who work on three tables; there is only one skilled surgeon in the team, and usually three experienced nurses; the rest are orderlies. In order that the work shall proceed continuously it is necessary to have another experienced doctor available for the sorting of the wounded as they arrive, directing them for radiography or for other purposes as may be required, and also choosing the next patient for operation. This same doctor could administer the spinal anaesthetics. This team is sufficient to deal with a large influx of wounded men, since there are about 30 cases of femur fracture to 400 or 500 total wounded as a rule. Thus all the femur fractures among 1,500 wounded men could be treated in 3 days. Admittedly it is unwise to wait till the third day, but under conditions of stress this can be done successfully if the patient has been given sulphanilamide powder by mouth and locally. We have found that in these conditions the proportion of dangerous infection is not higher than 2%. Up to 2% of cases may show secondary haemorrhage, but in not more than 10% of such cases is the haemorrhage likely to be dangerous. We consider, therefore, that 90% at least can be evacuated in excellent condition, and the majority of these patients will have their wounds healed and the fracture consolidated before the first plaster needs renewal.

SOME THERAPEUTIC FALLACIES

BY

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A few years ago one of us had occasion to give a clinical lecture in a London hospital to a number of general practitioners. In it he happened to question the value of certain generally accepted forms of therapy, to be hotly attacked by a section of his hearers on the score that he was taking away their "treatment." It was in vain he protested that if this could be proved to be valueless it should be discarded. They were not to be pacified. Shortly afterwards he had a similar experience in the Provinces. This paper owes its origin to these two incidents. It is not to be expected that all our conclusions will be accepted by all our readers. If they succeed in evoking a critical spirit—now, alas! sadly lacking—in regard to present-day methods of treatment, we shall be content.

Essential Hypertension

The number of men and women in middle and late middle life who "suffer" from this condition is enormous. The number who are living full and vigorous lives in blissful ignorance of the fact that their blood pressures are abnormally high is immeasurably greater. Of those in the first category few would have any symptoms referable to the condition if they had not been informed by their doctors that they were its victims.

Uncomplicated high blood pressure gives rise to no symptoms of itself in the large majority of patients; few without knowledge of its presence complain of dizziness, a sense of fullness in the head, occipital headaches, and any others of the list of symptoms ascribed to it in textbooks of medicine. Such symptoms are nearly always due to an anxiety state largely dependent on knowledge of the height of their blood pressure.

Before criticizing the usual treatment of hypertension it is well to remember that its cause is quite unknown, even if innumerable theories regarding it have been advanced at one time or another. In spite of common medical belief to the contrary, infections, whether general or local, auto-intoxication derived from the bowel, prolonged physical strain, and a high protein diet have, so far as is known, nothing to do with it. Nervous strain may raise it temporarily; there is no evidence that it can produce it. Endocrine disturbances are easy to blame; they are harder to incriminate.

In view of these facts treatment must be unsatisfactory. It can be said at once that therapeutically we are powerless to reduce blood pressure save temporarily. Nevertheless, prolonged rest in bed, regular purgation, repeated venesections, diets of many descriptions, all manner of baths, scores of drugs and organic extracts, high-frequency currents, diathermy, and we know not what else are constantly being used by the overactive therapist. The public also likes "treatment" and is willing to pay for it. In the present state of our knowledge is it not more logical for us to approach the question of treatment as philosophers? A patient who has been told that he has a high blood pressure often lives in constant dread of a "stroke." Then why tell him when we discover it? If he has been told already, why not reassure him by telling him of people with blood pressure as high as or higher than his who are living full and active lives; that many of them will reach the allotted span; and that if we could bring down his blood pressure the chances are that he would feel the worse for it? In the case of the relatives, of course, the position is rather different, and they should be informed that the expectation of life is not so good as in an individual with normal or low blood pressure. So long as there are no complications the patient should not be allowed to consider himself an invalid; on the contrary, he should be urged to keep up his interests, though on general grounds he should be advised to avoid overstrain, both physical and mental. He should be encouraged to take moderate outdoor exercise: golf played in leisurely manner is—or, alas! was—the game *par excellence* for hypertensive patients. Often they sleep well. When there is insomnia sleep should be ensured by a nightly dose of a sedative, but no one should be initiated into the habit unnecessarily. He should be allowed an ordinary mixed diet, unless perchance he be obese, when his weight should, if possible, be brought down gradually to reasonable proportions by dieting. This last is a most important measure, as, for one thing, there seems to be some connexion between obesity and hypertension; for another, it seems illogical to allow an already overworked left ventricle to be subjected to a further strain which is avoidable; and, for yet another, the raised diaphragm and its small range of movement present in obese people can only increase the heart's handicap. A hypertensive patient who has brought himself to submit to the loss of superfluous flesh is greatly gratified, as a rule, by the results of his abstinence.

Hypotension

Of recent years there has been an increasing tendency to diagnose a condition known as "low blood pressure." In consequence a new sword of Damocles has been hung over the heads of numbers of healthy people. A doctor, unable to find any organic cause for a patient's complaints, discovers in the course of his examination that he has a systolic blood pressure of something in the neighbourhood of 100 mm. Hg. He immediately fastens on this, with the result that a new invalid is created, to become almost inevitably the victim of polyvalent therapy.

Except in a very small and limited group of conditions such as shock, severe haemorrhage, coronary thrombosis, Addison's disease, and a severe infection such as influenza, hypotension is of no clinical significance. Our practice is, when we find a middle-aged man with such a blood pressure as we have mentioned and for which there is no apparent cause, to congratulate him upon the state of it. Apart from aught else, such a man is almost certainly immune to hypertension.

Arteriosclerosis

For this there is no known treatment. Yet how much honest endeavour is wasted in striving to stay its progress and restore its ravages! Why pretend to achieve the impossible? Surely it is better to accept the inevitable. No useful purpose, however, is served by telling a patient that he has arteriosclerosis. That much can be done to help him and his relatives by advice and by the treatment of various symptoms as they arise is certain. Nevertheless, the chances are that he will profit most by encouragement.

Angina Pectoris

The number of drugs used to reduce the frequency of attacks of angina pectoris should alone make one suspicious of the efficacy of any of them. Evans and Hoyle (1933, 1934) in a fine piece of work tested a host of them—sodium nitrite, mannitol hexanitrate, erythrol tetranitrate, potassium iodide, luminal, chloral, morphine, papaverine, phenacetin, diuretin, euphyllin, belladonna, digitalis, lacarnol, and harmol—to find that none of them acted better than the placebo they used as a control. And yet there must be few of the thousands of victims of angina pectoris in this country who are not taking at least one of them regularly on the advice of their doctors.

Nitrites, particularly in the form of freshly prepared glyceryl tetranitrate tablets, dissolved rapidly in the mouth before being swallowed, are of inestimable value not only in cutting short individual attacks but also in preventing them if they are taken immediately before exposure to such conditions as are known by experience to be likely to induce them. So transitory is their effect, however, that to give them, say, three times a day—as is often done—to prevent attacks is even less reasonable than to inject adrenaline three times a day to prevent attacks of asthma.

Cardiac Bruits: Simple Tachycardia

It would seem that to many practitioners the mere presence of a bruit is enough to warrant the administration of digitalis. The single indication for digitalis is heart failure in some degree, and this whether the bruit be or be not of organic origin.

Again, the mere presence of tachycardia seems still to many practitioners an indication for digitalis. It has no effect in simple tachycardia due to nervous, toxic (including thyrotoxic), and anaemic states. It is heart failure and not tachycardia which is the indication for digitalis.

Paroxysmal Tachycardia

An attack of paroxysmal tachycardia often arouses needless anxiety in patient and doctor alike, and recourse is straightway had to a variety of drugs, including inevitably digitalis. The first thing is, naturally, to make an accurate diagnosis, for it is necessary to exclude an unusual degree of simple tachycardia, paroxysmal auricular fibrillation, and paroxysmal auricular flutter. An electrocardiogram taken during an attack is of great value, though not always essential. Paroxysms differ in origin and type and affect both healthy and diseased hearts. The treatment varies from type to type, and the prognosis from patient to patient, but there are a few valuable rules to keep in mind as regards both.

Sometimes the tachycardia is ventricular in origin. Here the prognosis is usually grave, as in the large majority of patients serious myocardial disease is present; most cases, indeed, follow an attack of coronary thrombosis. It is then vital to stop the paroxysm as soon as possible. Digitalis, however given, is almost certainly ineffective and in large doses may be positively harmful, whereas quinidine sulphate, whether given by mouth or intravenously, may produce some of the most dramatically beneficial results in medicine. Far more commonly the tachycardia is supraventricular in origin, either auricular or nodal. Here the prognosis is usually excellent, as in the large majority of cases the myocardium is healthy—it is, indeed, practically only in cases of very diminished cardiac reserve, whatever the cause, that the prognosis is doubtful. Paul White (1937) goes so far as to say that the condition is "usually unimportant." Unless the life of the patient is crippled through the frequency or the length of attacks, or the reserve of the heart is known to be already small, active treatment is

unnecessary. It is generally advisable for the patient to rest during an attack; otherwise, little is needed save strong reassurance as to its innocence. Moreover, a small percentage of patients can themselves stop an attack by pressing on the carotid sinus in the neck, holding the breath, inducing retching, adopting a certain posture, and so on. If it is deemed advisable or necessary to stop an attack on account of its long continuance a subcutaneous injection of acetyl-beta-methylcholine chloride is the procedure most likely to be successful, though it is one never to be hastily adopted, since its effects in other ways may be alarming. Digitalis neither stops paroxysms nor diminishes their incidence. Quinidine sulphate is reputed to do both occasionally, although this is not our experience.

As a toxic goitre is sometimes responsible for the disorder it is always wise to exclude its presence, since a subtotal thyroidectomy in such a case may be the means of dispensing with all other kinds of treatment.

Paroxysmal Auricular Fibrillation

Marvellous as is the effect of digitalis in most cases of established auricular fibrillation, it will not stop individual attacks of paroxysmal auricular fibrillation, nor is there any satisfactory evidence that its regular administration prevents such attacks. In themselves these are—contrary to general belief—usually surprisingly harmless, and there is, as a rule, no urgency to endeavour to stop one, as it may easily and spontaneously cease after a short time. If, however, it persists hour after hour to the great discomfort of the patient, or if the cardiac reserve is known to be small, and in any case if signs of congestive failure appear, it can usually be stopped by the oral administration of quinidine sulphate at frequent intervals. As one of the most fruitful causes of paroxysmal auricular fibrillation is thyrotoxicosis, and a subtotal thyroidectomy generally results in a complete cessation of attacks, in every case a goitre should be diligently searched for—even if mitral stenosis is present.

Shock

This is a result of vasomotor and not cardiac failure. Drugs such as digitalis and strophanthin, which are often administered, have therefore no place in its treatment. It should be remembered, too, that with a reduced volume of blood reaching the heart it is necessary for it to beat rapidly to maintain the circulation.

Bleeding

Calcium is widely used in the treatment of purpura, menorrhagia, haemoptysis, epistaxis, post-operative haemorrhage, and haemophilia. It is also often given before operation as a prophylactic against haemorrhage. Yet, according to Hunter (1938), there is no pharmacological evidence that it either increases the coagulability of the blood or shortens the bleeding time. In his opinion there is no justification for its use in such conditions as we have mentioned; and, as regards its use before operation, it is only of value in cases of obstructive jaundice, in which probably part of the existing blood calcium has become bound to the bile pigment and is thus unavailable for the process of coagulation. Even in these cases administration of vitamin K is more important.

Chilblains

The use of calcium salts in the treatment of chilblains and allied conditions is practically universal. Yet there are no sure grounds for its use. In all these conditions the serum calcium is normal.

Anaemia

Tens of thousands of people are treated for anaemia who are not anaemic. A clinical diagnosis of anaemia is apt to be fallacious. In the examination of any patient in whom anaemia is suspected an estimation of the haemoglobin should never be omitted. If anaemia is found to be present every endeavour should be made to discover its cause. This may be revealed in the course of a thorough clinical examination. Often a full examination of the blood is not only advisable but necessary.

Most cases of anaemia with a low colour index are benefited by iron if effective preparations are used in adequate dosage. It is, however, often discarded as useless after trial in perfectly proper cases simply because the dosage has been inadequate. In this connexion we consider the recent fashionable craze for giving iron by injection deplorable. According to Witts (1930–1) the majority of ampoules of iron on sale contain infinitesimal amounts of the metal and are ineffective; the potent preparations cause much pain and occasionally iron poisoning. Vaughan's (1932) dictum that intravenous, intramuscular, and all proprietary preparations of iron are as useless as they are expensive is practically true.

Again, liver is not a panacea for every type of anaemia. It is, with rare exceptions, only of value in the treatment of pernicious anaemia and other megalocytic anaemias. As regards the method of its administration, on all grounds—cost, comfort, convenience, and effectiveness—parenteral therapy is infinitely preferable to oral; indeed, the latter method should now be considered archaic save in a few cases. Much has been written on the necessity for giving dilute hydrochloric acid as well as liver. It seldom relieves any accompanying indigestion; it has no effect on the anaemia.

Finally, there is no evidence that arsenic is of any value in the treatment of either microcytic or megalocytic anaemia.

Toxic Goitre

The truth of Joll's (1932) statement that subtotal thyroidectomy is "the method which most rapidly, most certainly, and most safely restores the patient to a state of economic efficiency and involves least likelihood of danger of relapse" is now firmly established. Iodine does not cure. This truth cannot be stressed too strongly. In most cases, for reasons not yet understood, it ameliorates the signs and symptoms, but only temporarily. Its administration for a short period before and immediately after operation has contributed not a little towards the extraordinary safety which now attends subtotal thyroidectomy when conducted by a team of experts. In our opinion its use should be restricted to these periods. The common practice of giving it for months and even years on end in the belief that it cures is strongly to be condemned. Thereby operation is often postponed till cardiac complications, extreme emaciation, or a psychosis supervenes.

The Common Cold and Influenza

The clamant demand of the layman for a cure of these, the banes of his life, would appear to have had such an undesirable effect on our profession that we feel it our duty to insist on the uselessness of preventive inoculation. In spite of the many large-scale investigations that have been carried out, not one of which has shown that any benefit accrues from such treatment, uncritical impressions still hold the field, and numberless patients are subjected year after year to prophylactic courses of vaccines.

Another point: sulphonamide compounds have no action on filter-passing viruses. It is unwise, therefore, to give them to patients suffering from uncomplicated colds and influenza. Moreover, to quote Beaumont and Dodds (1941), "the prophylactic administration of small doses of sulphanilamide against various types of infection, such as sore throats or colds, is useless."

Bronchitis

A diagnosis of bronchitis, whether acute or chronic, means almost invariably the prescription of an expectorant. The number of gallons of expectorant mixtures used in this country alone in any one year is enormous. That their action is beneficial is taken for granted. Yet it is doubtful if they do not do more harm than good. It seems not only a clumsy but a harmful procedure to try to increase bronchial secretion by irritating the vagal nerve endings in the delicate mucous membrane of the stomach through the administration of subnauseating doses of emetics. Nevertheless, this is how such expectorants as ipecacuanha, ammonium carbonate, and squills act—if they do act effectively when used in pharmacopoeial doses, which is not certain. The chances are that they do little more than cause gastritis. It may be said that this accusation cannot be brought against the iodides. Their action, however, has been found to be very variable, and is probably dependent on the sensitiveness of the individual patient to iodine. What is urgently needed, of course, is a complete reconsideration of the whole subject of expectorants. Unfortunately, as Clark (1937) says, the pharmacology of cough has scarcely advanced at all in the last half-century. We, for our part, have practically

given up expectorants in the treatment of bronchitis. In acute bronchitis—a condition which tends to spontaneous cure—we rely chiefly on rest in bed, an abundance of hot drinks, steam inhalations, and sedatives to control an irritating cough; in chronic bronchitis, on general measures as they affect physical condition, climate, environment, occupation, etc., and, since chronic bronchitis of any standing inevitably connotes bronchiectasis, we advise such patients as seem capable of it to practise postural drainage every morning and at intervals during the day. This can be achieved very simply by a patient stretching himself across a bed or couch with the trunk hanging steeply over the side and coughing till no more sputum is produced.

Lobar Pneumonia: Bronchopneumonia

In spite of the amazing success of sulphapyridine (M & B 693) and allied preparations in this disease there is still need for the well-established non-specific methods of treatment: measures to achieve rest and sleep, good nursing, a sufficiency of fluids, and oxygen. Special attention has always been directed towards the heart. Most doctors seem to visualize a heart poisoned by infection gradually dilating as it becomes flabbier till in the end it fails. Yet seldom, even in fatal cases, are the classical signs of congestive heart failure seen. Moreover, in a radiological study of 119 hearts in pneumonia by Davies, Hodgson, and Whitby (1935) definite enlargement was witnessed in no more than three. It is not cardiac failure which is to be feared; it is peripheral circulatory failure. This is due to loss of contractility of the muscular coat of the peripheral arterioles, with consequent stasis of the blood in the capillaries.

If this be the case, the uselessness of so-called "heart tonics" is manifest, even if they can ever be proved to have any stimulating effect on the myocardium. Certainly alcohol, whatever its value as a food or a sedative, has no such action, nor have strychnine and camphor, while strychnine does not appear to exert any effect on the poisoned peripheral vessels. Digitalis—in popular medical opinion the most potent of all "heart tonics"—is, after all, a poison, and its beneficial effects must be very convincing to warrant the further poisoning of an already poisoned organ. As a matter of fact, its effect in lobar pneumonia has been carefully investigated by many workers, among whom Wyckoff, DuBois, and Woodruff (1930) concluded that its routine use was dangerous and in large doses increased the mortality; while Cohn and Lewis (1935) in an analysis of 1,456 cases found that it did not influence the course of events. Whatever be the value of expectorants under any circumstances, they should logically have little place in the treatment of lobar pneumonia unless there is an associated bronchitis, for most of the exudate is absorbed and not expectorated.

All we have said about the heart, the circulation, heart tonics, etc., in lobar pneumonia holds also in bronchopneumonia. The value of such preparations as sulphapyridine in the individual case is, however, much more a matter of trial and error. Success or failure probably depends on the extent to which the pneumococcus is responsible for the infection, and this is difficult to assess.

Constipation

Incredible quantities of purgatives are ordered daily by doctors, in most cases needlessly and in many harmfully. In the first place to treat roughly and ignorantly a marvellous piece of mechanism like the intestinal canal, with its delicate epithelium, its wonderful secretory and absorptive apparatus, and its beautifully balanced rhythmic movements, is little less than an outrage. There is an ingrained belief in doctors and patients alike that manifold evils will result if the bowels are not opened once at least every twenty-four hours. Yet, as Gee insisted many years ago, this is not a natural law, and many people feel in better health when the bowels act once in every two or three days. There is little or no evidence to support the widely held opinion that auto-intoxication results from simple constipation: faeces are, after all, meant to dry in the distal colon, and toxic absorption is far more likely to derive from fluid faeces than from dry scybala. To quote Witts (1937): "Apart from mechanical distension, a constipated stool exerts little more influence on the patient in the colon than in the bed-pan." Again, in many people who complain of constipation the faeces arrive normally at the pelvic colon, but subsequent evacuation is not adequately performed owing to loss of the conditioned defaecation reflex, generally caused by continued neglect to respond at once to the call to stool. It is, however, in the constipation met with in acute infections that purgatives may be definitely dangerous. Here constipation is chiefly due to dehydration, and to dehydrate further an already dehydrated patient seems hardly logical. Once more, though there has been of late a change of mind on the part of most surgeons as regards the preparation of patients for operation, the practice of preliminary purgation in all cases still obtains in some quarters. To dehydrate deliberately before operation and to use all kinds of ingenious means to rehydrate immediately after would seem to be the acme of illogical thinking.

We ourselves have less and less recourse to purgatives with the years. Much can be done by stressing the harmlessness of constipation. "The ill effects of constipation are almost entirely psychogenic and due to worry over disturbance of habit" (Witts, 1937), and anxiety about the action of the bowels is probably in itself a fruitful cause of constipation. Much, again, can be done by insistence on the necessity for cultivating a regular habit, diet, exercise, the provision of a low lavatory seat or the adoption of a squatting posture for defaecation, and the lubricant, liquid paraffin. There is seldom any urgency to open the bowels in acute infections under four or five days, and then this should be done by enemata and not by purgation. Enemata are almost certainly not used enough in the treatment of chronic constipation; a regular habit can often be regained by their daily use in constantly decreasing amounts.

Our thanks are due to Drs. John Parkinson, Donald Hunter, Hugh Dunlop, and Clifford Hoyle for their helpful criticism of various points we have tried to make in this very incomplete and discursive paper.

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OBSERVATIONS ON THE ACID HAEMATIN METHOD FOR THE ESTIMATION OF HAEMOGLOBIN

BY

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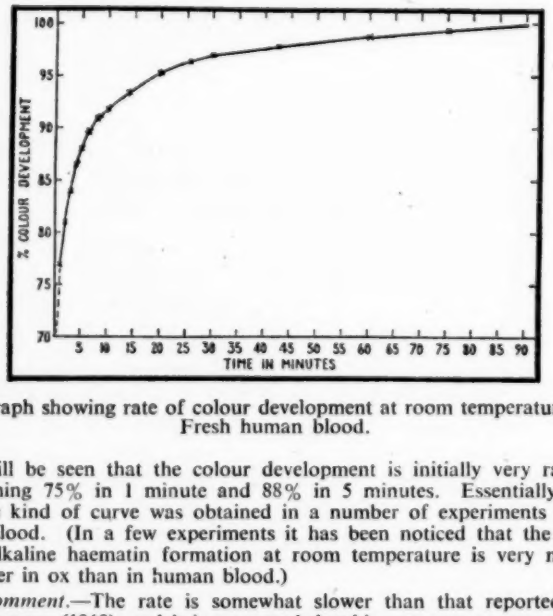
The acid haematin (Sahli) method is one which is widely used for the estimation of haemoglobin, and is recommended (M.R.C. Report, 1943) for use when the Haldane method cannot be employed. Though not ideal, it has several points in its favour—e.g., the reagents are simple and independent of a supply of CO, and the colour obtained with 20 c.mm. of blood is strong enough to read easily in the Haldane type of haemoglobinometer tube. While the conversion to alkaline haematin has many advantages (Clegg and King, 1942) the colour produced in similar concentrations is much weaker, and consequently comparison, particularly visual, is more difficult. A serious disadvantage of the acid haematin method, however, is that the fluid is a suspension and not a true solution (Barcroft, 1928). Considerable sedimentation has usually been observed in 24 hours at room temperature in several hundred samples investigated in this department. Moreover, occasional samples of blood give suspensions of such turbidity that they are impossible to read.

A further disadvantage is the confusion which exists regarding the length of time necessary for colour development. This lack of uniformity is illustrated by the following examples: Myers (1924) and Beaumont and Dodds (1941) give 2 hours as the time necessary at room temperature, while Whitby and Britton (1939) give 30 to 40 minutes. Stewart and Dunlop (1937) say: "Compare after 2 minutes," while the University of Glasgow Standing Committee (1940), as in the original Sahli (1909) technique, recommend comparison after one minute. Smith (1941) considered 10 minutes a suitable time for clinical purposes, and Campbell (1942) reported agreement with the Haldane method by comparing after 7 or 8 minutes. No doubt other workers use different times. These and other points were commented upon briefly by Ashford (1942). Since complete colour development undoubtedly requires time, it follows that divergent findings must result from the use of different times before comparison with a permanent standard. The time would, of course, be immaterial if a sample of blood of known Hb content was similarly treated at the same moment as the unknown. When, however, a standard such as the Newcomer disk (1919) is used the result will be inaccurate unless comparison is made at the time for which it has been calibrated by the makers. It would appear that this instruction has not always been supplied, or, if it has, has been neglected by the user. It would be advantageous to have agreed uniform conditions, and certain recommendations in that direction are made in this communication.

The Time Relations of Colour Development

A. At Room Temperature.—In the following experiments a Hellige colorimeter was used, and the "standard" was either a coloured glass of the Newcomer type or, more usually, a solution of acid haematin made up some 18 to 24 hours previously and filtered before use if not absolutely clear. A stop-watch was started at the moment when the sample of blood (20 c.mm. or a proportionate amount) was delivered into 5 ml. of N/10 HCl and mixed. The standard being already in position, the fluid was transferred to the vacant cup of the instrument and readings taken as rapidly as possible. The temperature was that of the room (14° to 18° C.). In these and in many other observations no increase of colour was observed after 2 hours, and this value was accordingly adopted as "100%" and the intermediate figures calculated as fractions of it. A typical curve obtained with normal fresh human blood is reproduced (see Graph).



Graph showing rate of colour development at room temperature. Fresh human blood.

It will be seen that the colour development is initially very rapid, reaching 75% in 1 minute and 88% in 5 minutes. Essentially the same kind of curve was obtained in a number of experiments with ox blood. (In a few experiments it has been noticed that the rate of alkaline haematin formation at room temperature is very much slower in ox than in human blood.)

Comment.—The rate is somewhat slower than that reported by Newcomer (1919), and it is presumed that his room temperature (not stated) must have been higher than those obtaining in this laboratory. Plesch (1941) claimed 88% colour development in 2 minutes; this is higher than either of our figures. It follows that if a solution is compared at 15 minutes against a standard calibrated for 5 minutes the result will be 4 to 6% too high, and after 2 hours some 12% too high. Moreover, owing to the varying time (50 seconds to 2 minutes in a series of observations) necessary to make dilution and comparison when using the simple haemoglobinometer technique, the time for reading should not be less than 20 minutes at room temperature, and the colour would then be only 95% of the final (2-hour) development. It is difficult to see how times of 1 or 2 minutes can be employed with accuracy, owing to the rapidity of the increase of colour in the early stages. To obviate the delay and to obtain complete colour development in a shorter time the effect of temperature was studied.

B. Experiments at 40° and 100° C.—It was not practicable to maintain the stage of the colorimeter at 40° to 45° C. or higher. The samples were therefore usually measured into tubes containing the acid and fitted with air-condensers to prevent evaporation. They were immersed in the water-bath for the time shown in Table I, in

TABLE I.—*Rate of Colour Development at Different Temperatures.* (*The Figures are the Readings in mm. of the Colorimeter Scale, the "Standard" being Constant in Each Experiment*)

Species	Temperature °C.	Time t	Reading at Time t (R_t)	Reading after 5 min. at 100° C. (R_{100})	Ratio $\frac{R_t}{R_{100}}$
Human	Room	2 hours	21·35	17·00	1·26
	"	2 "	21·30	16·80	1·265
	40–45	10 min.	21·30	16·50	1·29
	"	10 "	21·40	16·80	1·27
	100	5 "		16·80	1·265
Ox ..	Room	3 hours	24·00	19·15	1·25
	"	2 "	23·90	18·80	1·27
	40–45	5 min.	24·60		
	"	5 "	24·50		
	"	15 "	23·80	19·20	1·24
	"	15 "	23·60		

Where the experiment was carried out solely at 100° the value of R_t used is that obtained at room temperature.

which two examples of results obtained with human and ox blood are given. Table II similarly reports an example of the course of the reaction at 40° to 45° C. The tubes were rapidly cooled in melting ice before making the comparison. In all experiments a sample measured with the same pipettes was allowed to stand for

TABLE II.—*The Rate of Colour Development at 40° to 45° C. Ox Blood.* (*Readings of the Colorimeter Scale in mm.*)

Temperature °C.	Time t	Reading at Time t (R_t)	% of Final Reading	Reading after 5 min. at 100° C. (R_{100})	Ratio $\frac{R_t}{R_{100}}$
Room ..	2 hours	29·92	100·0	23·3	1·28
42–45 ..	5 min.	30·30	98·0		
	10 "	30·25	98·5		
	15 "	30·10	99·3		
	20 "	29·90	100·0	23·9	1·25
40–42 ..	5 "	30·60	97·6		
	10 "	30·40	98·4		
	15 "	30·10	99·3		
	20 "	29·90	100·0	23·8	1·25

at least 2 hours at room temperature, and this value was used as the final, or 100%, figure. It thus appears that incubation in a water-bath at 40° to 45° C. for 10 to 15 minutes gives results very close to that figure. As this was in a large volume of fluid in which the attainment of the raised temperature would be slower, there is little doubt that under the usual conditions of the estimation, when 20 c.mm. of blood is delivered into less than 1 ml. of acid, the reaction is at least 99% complete in 10 minutes. This technique has been adopted, with satisfactory results, for many rapid determinations in this laboratory. When the tubes fitted with condensers were immersed in a boiling-water bath for 5 minutes and cooled in melting ice before reading, an increase of colour of about 25% was observed. This is indicated in Tables I and II by the ratio R_t/R_{100}, since the concentrations are inversely proportional to the colorimeter readings, the standard being at the same mark throughout each individual experiment. It was found also that this increased colour production was complete in 3 to 4 minutes. This finding is a further reason for the standardization of conditions and calibrations. It also conflicts with the statement of Berman (1919) that boiling for one minute over a free flame gives the same degree of colour as 20 minutes at room temperature. As the fluid obtained at 100° C. is often rather turbid it is not suitable for use as a routine procedure.

Choice of a Standard

There is no doubt that for occasional routine estimations a permanent standard of the Newcomer glass type, properly calibrated and used under standard conditions, is the method of choice. Moreover, the tube employed should be rectangular in shape, since the standard has a plane surface; and it is an advantage if two pieces of glass, between which the unknown is placed, are employed. Furthermore, the tube should be graduated in terms of g. Hb per 100 ml. (or the Haldane scale), owing to the varying meanings which may be attached to the expression "100% Sahli" (see Ashford, 1942).

When a large number of estimations are to be made and a glass standard suitable for use in a colorimeter is not available, it is preferable to use a standard of blood of known Hb content similarly treated with acid. The standard made by dilution from a stock 3% solution of acid haematin (Cohen and Smith, 1919) has not been found entirely satisfactory, being usually more turbid than the fluid from a fresh blood, and the turbidity tends to increase with the age of the strong solution. As this is a thick suspension it is unlikely that the state of dispersion of the solution diluted from it would be identical with that of a freshly made suspension. The procedure therefore adopted was to prepare the acid haematin standard by appropriate dilution with N/10 HCl, from ox or human blood whose oxygen capacity had been determined when fresh by the Barcroft method, and which had been stored in the refrigerator, just before starting to draw the series of blood samples. This technique is justified by the observation that the rate of formation of acid haematin was unaffected by the storage of the blood, at any rate up to 2 weeks.

It has been further shown that it is permissible to use ox blood as standard when human blood is under test. Palmer (1918) stated that this was not so; but Cohen and Smith, who studied several species, did not agree with him. An example of our experiments is shown in Table III. It will be seen that

TABLE III.—*Comparison between Samples of Ox and Human Blood. Ratios of Haemoglobin Content Calculated (a) from Total Oxygen Capacity, and (b) from Direct Colorimetric Comparison after Conversion to Acid Haematin*

Species	g. Hb per 100 ml.	Ratios	
		(a)	(b)
Ox No. 2	12·35	1·00	1·00
„ „ 3	14·60	1·18	1·22
„ „ 4	13·00	1·05	1·03
Human No. 1 ..	16·35	1·32	1·36
„ „ 2 ..	12·20	0·99	1·02
„ „ 3 ..	10·50	0·85	0·855
„ „ 5 ..	9·20	0·745	0·72
„ „ 6 ..	10·40	0·84	0·83
„ „ 7 ..	11·05	0·895	0·91
Mean of human figures		0·94	0·95

the ratios calculated from oxygen capacity and by comparison after conversion to acid haematin are very similar. The experiments have included "normal" and weaker samples of blood; none have been made in the presence of abnormal pigments—e.g., COHb or MetHb.

Discussion

The disadvantages of the acid haematin method have been summarized by Clegg and King (1942). Wu (1922) showed that the colour obtained depended on the plasma proteins, but concluded that in all normal samples variations in protein and lipoid content were insufficient to cause an error. In fact, his figures showed that the amount of plasma could be increased 3 or 4 times above the normal ratio without causing an appreciable change, though there was a 20% deficit in colour when plasma-free Hb was used. His results were obtained with sheep's blood; if applicable to human blood they would suggest that the method can be used accurately over a wide range of anaemic bloods (cf. Table III). Nevertheless Wu favoured the conversion to alkaline haematin because abnormal pigments such as COHb, MetHb, and CyanHb gave a depth of colour in acid up to 15% above that of HbO_2. It does not appear likely, however, that the amounts of these pigments which may be present in human blood would appreciably affect the colour.

Summary

Formation of acid haematin from ox and human whole blood reaches completion at room temperature (14° to 18° C.) in 2 hours; the same depth of colour is obtained in 10 to 15 minutes at 40° to 45° C. The latter procedure is recommended for routine technique, and the permanent standard should be calibrated accordingly.

Heating at 100° C. for 4 to 5 minutes causes an increase of some 25% in colour. Boiling should therefore be avoided.

A standard obtained by dilution from a 3% stock solution of acid haematin was not found satisfactory. An alternative procedure is suggested.

Ox blood can be used as standard when human blood is being assayed.

My thanks are due to Prof. R. J. Brocklehurst for his interest in this work.

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LOCAL APPLICATION OF SULPHANILAMIDE POWDER IN RADIOTHERAPY

BY

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Sepsis presents a constantly recurring problem in radiotherapy, and its prevention or treatment merits the most careful consideration. Descriptions have previously been given of the antiseptic action of certain acridine compounds, and the success of proflavine in radiotherapy has been stressed (Charteris, 1937; Young and Charteris, 1940). In view of the increasing interest in local application of this substance, it is gratifying to find that my early estimate of its efficacy remains unchanged, and that its proper use makes various radiotherapeutic procedures possible and safe. This is especially true as regards superficial ulcerating growths, also tumours in the nose and its accessory sinuses, and in the realm of gynaecology. I have used proflavine oleate 1% in liquid paraffin, and the original preparation has been improved by the addition of enough oleic acid to produce complete solution.

There is a further important field for antiseptics, however, in the form of powder preparations where the parts must be kept dry, and this refers particularly to the after-treatment of patients, in contrast to their preparation and actual irradiation, when proflavine in an oily vehicle is usually excellent. For dry applications sterile sulphanilamide powder was chosen. It has been used in a large number of cases since early in 1942, and proved most satisfactory. There are three main kinds of application.

Methods of Application

The first and most general of these is in the care of unbroken skin undergoing a dry reaction after radiotherapy. If moist desquamation is to be avoided the skin must be protected against friction and pressure, besides being kept clean and dry. For the latter purpose powder dressings are excellent, and not only is sulphanilamide powder suitable in this sense but it also eliminates the risk of chronic pustules forming. A special use is found in the case of reactions about the vulva or anus, or in any place where apposition of the parts makes a more severe reaction likely, apart from any local variation in tissue sensitivity: regularly changed dry applications on gauze will at least limit desquamation in such situations if carried out two or three times in the day, according to circumstances.

Where it has been necessary to subject skin to something approaching maximal irradiation in order to deliver an adequate "tumour dose," moist desquamation is inevitable, and its treatment presents the dual problem of minimizing discomfort and diminishing post-radiational stigmata so far as is possible.

Bland oily dressings of some sort, or even tannic acid preparations, are much used, but I should now prefer dry sulphanilamide powder from both standpoints. Its direct application is obviously impracticable; but the affected part is first covered with moistened protective gauze tissue, which is allowed to dry in position, and the powder is then dusted on. Dressings can be carried out as often as necessary without disturbing the protective layer, much after the style of some skin-grafting procedures. The outer surface can be gently washed, dabbed dry, and again dusted from time to time, the whole being covered by gamgee and a bandage.

Finally, there is the case of a superficial tumour with ulceration. Where some form of radium therapy is called for, the use of proflavine oleate as described will usually permit treatment to be carried through for at least a week without change of dressings. Sulphanilamide powder becomes useful, however, after irradiation is concluded, both to control sepsis and to limit reaction by keeping the part as dry as possible. Liberal application under a plain dry dressing is excellent, and changes are as a rule only necessary every three or four days, which is a consideration in a busy out-patient clinic. The absence of purulent discharge is often remarkable, in contrast to what s seen with some other forms of antiseptic treatment. When a small unbroken neoplasm is treated its surface will become a temporary ulcer owing to regression even when surrounding normal skin is unaffected by moist reaction, and the powder method is very helpful here. Its adoption immediately after treatment is finished usually results in a clean dry protective scab over the actual lesion, and on the face no dressing may be needed. This scab falls off, leaving a healthy patch of skin with little evidence of what was previously present. At a later stage, when all reaction has died away, any irradiated skin is often somewhat dry; there is no objection then to the use of a simple lubricant like lanolin or vaseline.

It is appreciated that the subject of antiseptics in radiotherapy is a large one, and that many different substances may prove helpful, but these notes are given in the hope that they may be of some practical benefit, since my own experience has led to the regular employment of the methods in my department.

I have pleasure in acknowledging once more Prof. C. H. Browning's helpful suggestions on the use of antiseptics.

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THE RENAL FUNCTION IN MYXOEDEMA

BY

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Means (1937) has stated that, except for albuminuria, the picture of nephritis is absent in myxoedema. Recently we (Beaumont and Robertson, 1943) described a case of pituitary hypothyroidism in which renal impairment was a marked feature, and we suggested that part of these renal signs might be due to the hypothyroidism. In the present paper seven cases of myxoedema have been studied. The findings are given in the accompanying Table. The second series of observations ("after thyroid therapy") were made three months after treatment was instituted, when the basal metabolism was constant on a maintenance dose of thyroid. In determining the basal metabolism the standards of Aub and DuBois (1917) were employed. The urea clearance of Möller, McIntosh, and van Slyke (1928) was confined to the maximum clearance in view of the errors consequent upon low urine output—i.e., all the tests were made during a diuresis. In carrying out the test of water excretion (dilution test) the subject drank a litre of water in a quarter of an hour, and the urine was collected over the next three hours. A series of five normal healthy subjects gave urine outputs of 840, 970, 1,370, 1,000, 920 c.cm., with a mean of 1,000 c.cm. The urine concentration test was carried out according to the instructions of Fishberg (1939): a urine concentration of over 1024 is considered normal.

A study of the results in the Table shows that the urea clearance in myxoedema is low and rises significantly after adequate thyroid therapy ($t=6.05$; $P=<0.001$). Of the cases of treated myxoedema only one (Case 5) had a urea clearance within the range of Addis's normals (1917), and this was so when she was still myxoedematous. It would appear that, although thyroid medication improves the urea clearance, it remains subnormal.

Table of Findings Before and After Thyroid Therapy

Case	Basal Metabolism		Urea Clearance (per cent. of Normal)		Urine Output (c.cm.) 3 hrs. after Drinking 1,000 c.cm. Water		Highest Specific Gravity Urine	
	Before	After	Before	After	Before	After	Before	After
1	−41	−1	49	85	800	1,230	1025	1021
2	−31	+8	38	56	660	815	1026	1023
3	−32	0	56	71	1,070	970	1026	1012
4	−32	−2	48	56	672	1,094	1025	1018
5	−37	−9	100	118	1,310	1,360	1027	1014
6	−33	−3	50	75	795	1,310	1021	1018
7	−42	+4	56	78	1,330	1,175	1024	1019
Mean	−35	0	57	77	948	1,136	1025	1018

The water excretion is normal in myxoedema, and after treatment with thyroid no significant change occurs ($t=1.98$; $P=0.1$).

Patients with myxoedema are able to concentrate urine as efficiently as normal people. Treatment with thyroid produces a significant change in the ability to concentrate urine ($t=3.55$; $P=<0.01$). As these observations were carried out at least six months after treatment was instituted, and when the basal metabolism was steady, the low specific gravity herein reported does not appear to be due to the diuretic action of thyroid, which is a feature when treatment is first begun.

No other evidence of renal impairment was found despite chemical and microscopical examinations of the urine. Albuminuria was not detected in any case.

Summary

The renal function of 7 cases of myxoedema has been studied before and after adequate thyroid therapy.

The urea clearance is diminished and rises after thyroid therapy. The urea clearance in treated myxoedema, however, still remains below normal.

The other tests of renal function, such as the water excretion and urine concentration, were normal.

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Principles for the prescription of quinine in Germany (*Dtsch. Arzteblatt*, Nov. 1, 1942, **72**) include the following: (1) Quinine must not be used as a prophylactic against influenza. (2) It is not to be used as an analgesic or tonic. (3) In the treatment of cardiac arrhythmia, and especially auricular fibrillation, quinidine should be used so far as possible in the place of quinine. (4) The use of quinine as an "ecbolic" in midwifery can be continued. (5) So far as is necessary quinine can still be used besides the synthetic remedies for the treatment of malaria. (6) For the treatment of chills and influenza quinine is indispensable. There is no objection to the use of small quinine doses occasionally in influenza, in combination with ascorbic acid. (7) For the treatment of croupous and bronchopneumonia (also whooping-cough) the injectable quinine preparations can be replaced by the sulphonamides. Only, therefore, in isolated cases should bronchopneumonia be treated with quinine—for example, after operations or in whooping-cough. (8) In suppurating bronchitis and bronchiectasis the injectable quinine preparations are almost always replaced by guaiacol preparations or camphor in oil. Nevertheless, injectable quinine preparations can be used in isolated cases. (9) The use of quinine in sepsis, typhoid, and other general infections is now out of date and can be replaced by amidopyrine.

Medical Memoranda

Acute Dilatation of the Stomach

A case of this dangerous malady has just occurred in my hospital practice, and may prove of interest with reference to the article by Messrs. Lee and Somerville (1941) and the letter by Dr. Gustav Singer (1941), both in your columns.

Case History

An otherwise healthy man aged 35 was admitted for pain in the abdomen, vomiting, and constipation. Examination showed marked meteorism, tenderness in the lower abdomen, and a ballooned rectum with fullness in the upper part of the recto-vesical space. Two enemata were without result. Then a spinal anaesthetic was given and a rectal tube passed, but without effect. The abdomen was opened by a right paramedian incision, and a volvulus of the sigmoid colon was reduced easily, by hand, within the abdomen. The tube was guided up into the descending colon, and gas and some faecal matter were passed on the table. The sigmoid colon, which was very mobile, was stitched to the lateral parietal peritoneum with two catgut sutures passed through one of the longitudinal muscle bands. One stitch fixed the colon to the abdominal wall above the iliac crest, and the second attached it to the peritoneum just above the external iliac vessels. It was difficult to place more sutures because of the distension, and the bowel remained in good position. After a gentle general routine exploration the abdomen was closed in layers, with the addition of three tension sutures passing through all of them. The operation took 55 minutes, and the patient left the theatre in very good condition.

Morphine gr. 1/4 was given some hours later, during the night, and the patient drank some glucose water. There was no nausea or vomiting. Twenty-four hours later there was still constipation, distension was much increased, and there was pain in the epigastrium with slight hiccup. Enemata, intravenous pituitrin, flatus tube, and eserine failed to have any effect; the pulse was slightly accelerated.

Fearing acute dilatation of the stomach, I passed a Ryle's stomach-tube and applied a syringe. About five pints of the typical peat-water contents was withdrawn. This was run into the rectum slowly, but most of it was rejected. Auscultation of the abdomen revealed faint peristaltic noises, but, as constipation was persistent and pain and distension increasing I prepared to operate. As a last conservative measure, however, morphine and a spinal anaesthetic were given, and the patient was turned on his face in the Trendelenburg position. Within a few minutes a large loose fluid motion was passed with much flatus. He was returned to bed, and in the morning there was no distension and his condition was quite satisfactory. Except for slight wound sepsis he made a perfect recovery.

Comment

There seems still to be a lack of uniformity of opinion as to the pathogenesis of acute dilatation of the stomach. From the above case it appears to me that Rokitansky's theory cannot, in all cases, represent the initial cause, for the patient was lying on his side with the foot of the bed raised when the symptoms began, and the dilatation of the stomach appeared as a sequel to the lower abdominal meteorism.

I suggest that there was interference with the normal co-ordinated action of sympathetic and parasympathetic nerves controlling the stomach and bowel, brought about either by toxaemia or by trauma; that is to say, a fault of neurogenic origin. This resulted in an overaction of the gastric secretory function and in non-relaxation of the lower bowel sphincters. The eserine failed to stimulate the parasympathetic nerves to the large bowel sufficiently to cause relaxation of the sphincters and evacuation, perhaps because it was given in too small a dose, and the incoordination was relieved only by the spinal anaesthetic, which, while causing a temporary paresis of the lower spinal nerves generally, also inhibited sympathetic efferent impulses which passed in the sacral nerves to the presacral plexus and which caused contraction of the lower bowel sphincters.

Acute dilatation of the stomach therefore appears to me to be a manifestation of a general tendency to a sympathetico-tonic state or to incoordinated overaction of the sympathetic, and in future cases I shall consider the use of spinal anaesthesia in the treatment of this condition as well as the usual methods of posture and gastric aspiration.

I think that I made the error, in this case, of not leaving the flatus tube high in the descending colon, for adequate drainage of the bowel might thereby have been facilitated and the gastric complication have been avoided.

R. D. MacRae, M.B., F.R.C.S.Ed.,
Lieut.-Colonel, I.M.S.

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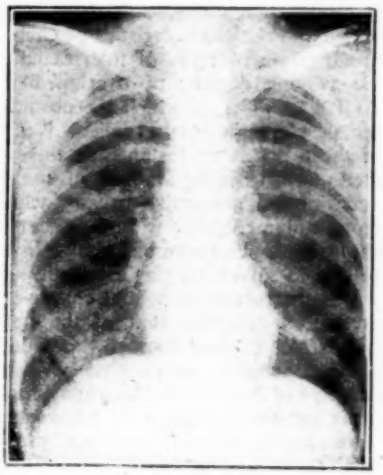
X-ray Diagnosis in Pulmonary Tuberculosis

The following case record may be of interest to many readers in view of the prominence given to mass radiography of the thorax.

Case History

A single woman aged 40, a cardboard-box maker, was admitted to this hospital on Dec. 16, 1942, in a state of confusion with much restlessness and agitation. She was very resistive to attention in all forms. Physically she was an extremely poor specimen; her weight on admission was only 4 st. 4 lb., and her height scarcely 5 ft. The thorax was very narrow and the chest mechanism poor, giving a small tidal-air content. The breath sounds were rather harsh and there was a slight dullness towards the right base. She had a definite enlargement of the thyroid gland.

Blood examination showed: red cells, 4,200,000 per c.mm.; Hb, 80%; colour index, 0.95; white cells, 3,100 per c.mm.—lymphocytes 57% (1,767 per c.mm.), polymorphonuclears 43% (1,333 per c.mm.); halo reading, 4.7%. The blood sedimentation rate was: 1 hour, 29 mm.; 2½ hours, 65 mm.; 4 hours, 78 mm. Blood Wassermann: ± 3 M.H.D., − 5 M.H.D. Examination of the cerebrospinal fluid resulted as follows: Wassermann test, negative; gold colloid test, negative; protein, 30 mg. per 100 c.cm.; cell count, 3.3 per c.mm. Urine examination showed a normal specimen. The sputum could not be examined, as no cough or expectoration was present. The faeces, however, were tested for tubercle bacilli, but a negative result was obtained. The temperature chart was quite atypical.



Radiograph of case

From a radiograph taken Jan. 26, 1943, the lungs seemed then to be quite clear. It was assumed, however, that there was a tuberculous focus somewhere in the lungs, and she was treated accordingly. At intervals she refused food, and in spite of all possible care and attention she died on April 16, 1943.

A post-mortem examination showed extensive infiltration and part caseation of the middle and lower lobes of the right lung. Apart from an enlarged and cystic right lobe of the thyroid all other organs were in a fairly good condition, confirmed by histological examination.

Significance of the Thyroid

The thyroid activity was determined by estimating the iodine elimination by the urinary route. This gave almost 1 mg. excreted as iodine during 24 hours. About one month later a similar estimation was carried out, 0.61 mg. of iodine being recovered. Both of these figures are much in excess of normal. The fall in iodine excreted in the second instance was accompanied by a further loss in weight. Increasing mental and physical deterioration was also manifest at this period.

The thyroid gland was examined for iodine after the necropsy. The figure found was below normal. This is to be expected when the general pathology of the case is taken into account. Concurrent exhaustion of the gland would now be in progress. Histologically there was much evidence of past activity—more so in the left lobe. The right lobe showed marked fibrous degeneration. The history of the case revealed that the enlargement of the thyroid was first noticed about fifteen years ago. The whole gland weighed 54.86 g. This would indicate scarcely 50% increase.

Comment

In view of the above findings it is possible that the thyroid activity may have been a factor in accelerating or aggravating the tuberculous process in the lung to a rapidly fatal termination. There is no doubt that hyperactivity of the thyroid would cause increased pressure on an already strained metabolism.

Although the B.S.R., the leucopenia, and the slight dullness around the base of the right lung were individually not diagnostic of pulmonary tuberculosis, yet the combination pointed strongly in that direction. The radiograph, taken only two months before the death of the patient, was not of any diagnostic value. As a matter of fact, it was rather misleading in this case. It might be argued that further positioning should have been adopted, as, for example, lateral views; but as the A.-P. seemed to be within the bounds of normality this was not thought necessary. In mass radiography an A.-P. picture as obtained here may be thought sufficient for diagnostic purposes, but, as has been shown, this is not so.

The obvious conclusion, therefore, is that radiography is not the final court of appeal—at least in the early stages of the disease.

Staffordshire Mental Hospital, Stafford. J. S. Sharpe, M.B., Ch.B.

Reviews

INTERSEXUALITY

Hermaphroditos: the Human Intersex. By A. P. Cawadias, M.D., F.R.C.P. (Pp. 78. 15s.) London: William Heinemann. 1943.

In this expanded version of his Thomas Vicary lecture Dr. Cawadias combines classical learning with modern endocrinology and morphology. He discards the label of hermaphroditism as too involved in mythological associations, and prefers that of intersex, which he defines as a morbid exaggeration of a normal process. He reminds us that sex is antenatally determined by the genes, the gonads being important executives. But the gonads of each sex carry vestigial remains of the opposite one, and experimentally we can inhibit or exaggerate the characteristics of each. He proceeds to a useful classification of types of intersexuality, though naturally there are varying degrees of overlap between them. There are: (1) The *gonadal*, in which the normal balance of the male and female elements in the gonads is upset. A virilizing tumour of the ovary is an instance of this. (2) The *genital*, in which there is a variable amount of malformation of the external and internal generative organs, which are normally moulded from a plan common to both, under the organizing influence of the original sex-forming impulse in the genes. This type then is due to an embryological fault. (3) The *morphological*, in which the secondary sexual characters and general bodily conformation resemble that of the opposite sex. This may be powerfully affected through the endocrine system; thus cortical adrenal tumours may cause virilism in women, while male subjects of hyperthyroidism may have feminine traits. Recent work on the excretion of androgens and oestrogens by both sexes, but in different amounts, proves that there is a bisexual basis here, the balance of which may be upset. (4) The *psychological*, affecting temperament and emotion. It will be seen that this classification allows for various degrees of intersexuality, while, so far as the last factor is concerned, environment may have considerable influence. Parents who are disappointed by the birth of a girl when a boy was desired not infrequently do the child life-long damage by attempting to mould her into something as much like a boy as they can.

Dr. Cawadias in his account of androgynoidism and gynandroidism emphasizes the view that it is the mild intersexes that are the most interesting, while the very rare monstrous ones, the so-called pseudo-hermaphrodites and hermaphrodites of our fathers, are useful principally for the understanding they afford of the extremely frequent milder forms. Though space prevents details of his interesting discussion on "pragmatic sex" and "genetic sex," the foregoing summary will make clear his use of these terms. When this lecture was originally delivered it gave rise to some controversy, as some thought that endocrine treatment of these disorders was regarded too optimistically. In the book before us not much objection can be taken on this score, even if some developments referred to belong to the future rather than the present. The rapidly increasing price of books is a disturbing phenomenon. This book of 78 pages costs 15s.

VIRUS DISEASES

Virus Diseases. By T. M. Rivers, M.D., W. M. Stanley, Ph.D., L. O. Kunkel, Ph.D., R. E. Shope, M.D., F. L. Horsfall, jun., M.D., and P. Rous, Sc.D. (Pp. 170. $2.00 or 12s.) New York: Cornell University Press; London: Oxford University Press. 1943.

Beyond the Microscope. By Kenneth M. Smith, F.R.S. Pelican Books. (Pp. 112. 9d.) Harmondsworth: Penguin Books.

Two books have appeared recently which admirably present the achievements of virus workers to different classes of reader. For the initiated there is *Virus Diseases*, by six members of the staff of the Rockefeller Institute—not a textbook, but the publication in book form of six lectures given at Cornell University. Each of these is a fully documented monograph on a subject with which the author is closely identified, and represents an important advance, the scale and significance of which may surprise even the well-instructed reader. W. M. Stanley, who startled the world of microbiology some years ago by reducing the virus of tobacco mosaic disease to crystalline form, reviews further progress in the physical and chemical study of plant viruses. Tobacco mosaic virus is now known to be a conjugated protein: it contains 15 amino-acids in accurately ascertained proportions, while four others are known to be absent. Chemical differences between different strains have been identified, and further study on these lines bids fair to demonstrate the chemical basis of mutation. The all-important question whether animal viruses, like plant viruses, must be considered non-living is discussed by Rivers and receives a qualified answer. His subject is the virus of vaccinia, the particles of which when photographed with the electron microscope have somewhat the appearance of dice—rectangular masses with darker spots on them. Kunkel's contribution on "New Hosts as a Key to Progress in Plant Virus Disease Research" tells a fascinating story of transmission experiments, in which aphides and other natural vectors are shown as far superior to the mechanical methods of the experimenter. Transmission to another host is often desirable because the natural plant host may be too unwieldy or slow of growth for experimental purposes, because it is desired to ascertain the resistance of the virus to heat by infecting a plant which itself resists very high temperatures, or—as in the case of one whole genus—because every plant of every species is infected and a normal natural host is therefore not available. Shope tells of swine influenza, discussing its possible origin in the human influenza pandemic of 1918, and describing how the virus is now known to have a cyclic existence, being conveyed annually from pig to earthworm and back by the swine lungworm, of which the earthworm is the intermediate host. Horsfall contributes a statement of the present position in the study of human influenza, and Rous admirably summarizes the recent work, to which he himself has contributed so largely, on the part played by viruses in producing tumours. These are the high lights of modern virus work, and they are here presented in a form which makes good reading both for the expert and for the novice.

Beyond the Microscope, by Kenneth M. Smith, is a book on viruses in the Pelican series, and succeeds well in the difficult task of presenting highly technical material in a generally intelligible and attractive way without resort to the sensationalism which so often mars books of this kind. It might be expected that an authority on plant diseases would overemphasize this aspect of the subject, but a nice balance is maintained between plant and animal pathology, and in treating some aspects of his subject the author deals with both types of virus together. This book shows that the subject can be made to have a wide popular appeal; apart from the romance of deadly if unfamiliar diseases such as yellow fever and hydrophobia it touches ordinary life at many points, both in the virus causation of common ailments and in such matters as colour change in wallflowers and the danger to tomato plants of smoking cigarettes in the greenhouse.

MEDICINE IN CHINA

China's Health Problems. By Szeming Sze, General Secretary, Chinese Medical Association; Editor, *Chinese Medical Journal*. (Pp. 60. $1.00.) Washington: Chinese Medical Association, P.O. Box 6096.

The author of this small volume was educated at a public school in England and at Cambridge University, and later had a distinguished career at St. Thomas's Hospital, whence he qualified. He then went out to China to dedicate himself to the Chinese medical profession. This book is the outcome of the information he has gathered on health problems and medical organization in that country. It can be said with truth that these problems are terrific and will take many years to settle. With the morbidity rate of 4% there are some 16,000,000 persons sick on any one day. In the whole country there are only 12,000 doctors and 38,000 hospital beds. On the basis of the usual medical standards China should have at least 266,000 doctors and 2,000,000 hospital beds. A large proportion of the population still rely exclusively on native medicine and native empiric methods of treatment. It will thus be seen that medicine in China is still in a very backward state; but as the author shows, there is an active National Health Administration and Health League, both of which bodies are steadily working towards improvement. There are ten chapters each dealing with a different health problem. The pros and cons are clearly and ably stated, and the work is a distinct contribution to this vastly important subject.

Notes on Books

Towards the end of 1934 the secretary of Grith Pioneers asked Dr. MARJORIE FRANKLIN whether a pioneer camp could be used to benefit youths whose behaviour problems unfitted them for normal society but who were suitable for environmental treatment and did not need specialized individual therapy. To answer this question practically, "Q Camp" was founded, and in 1936 the society opened Hawkspur Camp, near Great Bardfield, Essex. Annual reports have given some account of its activities; it had to be closed in 1940, but the society remains in being and is anxious to start again as soon as conditions allow. Meanwhile it has published the full story of *Q Camp*, its internal government, daily life, practical work, and a summary of what it accomplished. The community started in a field under canvas, and gradually housed itself in wooden buildings. Members came through physicians, the courts, social agencies, and other channels. They were a difficult party. Most of the selection was done at the Institute for the Scientific Treatment of Delinquency. Camp economics was an important instrument of treatment: it included wages, charges for board, lodging, clothing, and taxes, and a poor-rate to support non-workers. The staff regarded affection as the most potent factor for the readjustment of members, and used intelligently the phenomenon of transference. Punishment was limited to small fines imposed by the camp council. Three medical psychologists and an educational psychologist advised constantly on all aspects of behaviour. Government evolved by stages, including one of anarchy, into a genuine democracy. In all 56 youths went through the camp. The authors candidly refused to be definite about results, or to attribute all the improvement in any case to the camp alone. They claim, however, that most of the members were helped to become happier and to have a better relation to society, to acquire a steadier and more genuine maturity and a sense of security, to lose much of their crippling guilt-sense, to turn their ill-regulated energies into useful and creative channels, and to improve their total personalities. Many ex-members have since done well in the Forces and in civil life. The report, price 1s. 6d., can be had from the secretary of the Howard League, Parliament Mansions, Victoria Street, S.W.1.

Social Therapy: An Introductory Study, by Lieut.-Cmdr. M. B. HALE, R.N., and S. M. HALE, a psychiatric social worker, is published by Williams and Norgate, price 5s. The authors are former members of the staff of the London Charity Organization Society, and they attempt to give an idea of social case work to anyone whose duty brings him into close personal contact with his fellowmen. It is firmly based on practical experience, and much of it has already been used as lectures to probation officers in training. It is more particularly intended to give material for discussion to first-year students at schools of social science and to workers in official and voluntary relief organizations. The authors discuss the main aspects of social work—buildings and equipment, interviewing, background, visiting, treatment, conference work, and records—from the standpoint of field workers whose attitude is rooted in Catholic religion tempered by a real acceptance and comprehension of modern psychology, particularly that of C. G. Jung.

Preparations and Appliances

ROCKING DEVICE FOR STRETCHER

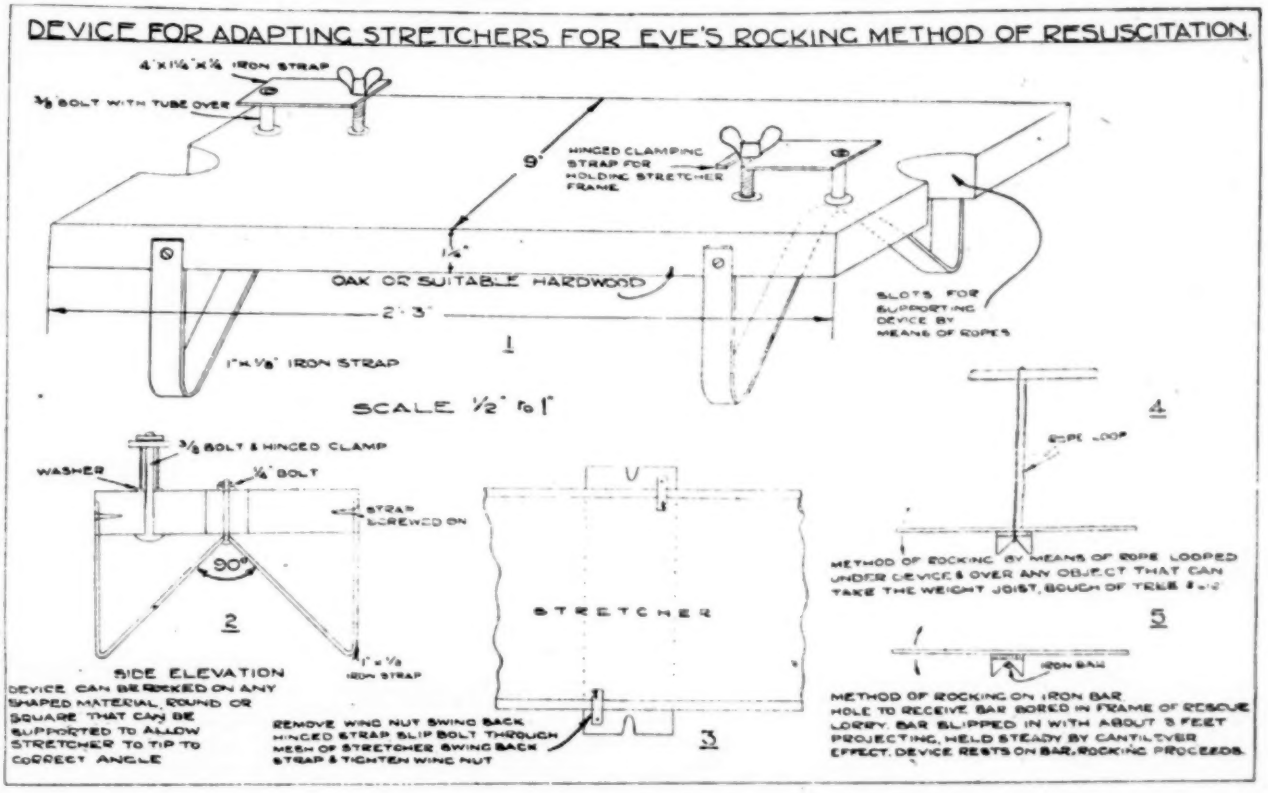
Dr. J. L. BARFORD, Medical Officer i/c Casualty Services, Surrey Control, Region XII, writes:

Increasing interest is shown in Dr. F. C. Eve's rocking method of resuscitation, but the various devices illustrated or suggested in your columns have not always been clear or easily adaptable to "incident" conditions and Civil Defence equipment.

Mr. R. Harris, Instructor at the Surrey County Council Rescue School, Leatherhead, has constructed a device (a print of which I enclose) for use with the Civil Defence stretcher in almost any circumstances. It consists of a block of good hard wood (2 ft. 3 in. × 9 in.) slotted at each end (Fig. 1) and fitted on its under surface with two metal straps bent to 90 degrees in their centres (Fig. 2). The block is fitted on the under surface of the C.D. stretcher by means of hinged clamps (Fig. 3). The device can be secured in a minute on to the stretcher which, already blanketed, is ready to receive the casualty.

The stretcher may be rocked either (1) suspended by a length of rope from a beam, etc., above, the loop of the rope fitting into the end slots in the wood block (Fig. 4); or (2) supported from beneath on almost anything, round or square—a trestle, crowbar, scaffold pole, 4 in. × 4 in. beam, etc., or an iron bar fitted in the undercarriage of the rescue lorry (Fig. 5). In either case the stretcher should be some 2½ ft. to 3 ft. from ground level.

I have seen the device in action and have satisfied myself as to its usefulness and extreme adaptability. It is easily made by a handyman, costs decidedly under 10s., and, apart perhaps from the block of hard wood, demands no controlled material. Surely all rescue service lorries might be equipped with this device and one made to form part of the equipment of every first-aid post.


DEVICE FOR ADAPTING STRETCHERS FOR EVE'S ROCKING METHOD OF RESUSCITATION.
4" x 1½" x ⅛" IRON STRAP
⅜" BOLT WITH TUBE OVER
9"
HINGED CLAMPING STRAP FOR HOLDING STRETCHER FRAME
1½"
OAK OR SUITABLE HARDWOOD
2' 3"
SLOTS FOR SUPPORTING DEVICE BY MEANS OF ROPES
1" x ⅛" IRON STRAP
1
SCALE ½" to 1"
⅜" BOLT & HINGED CLAMP
WASHER
¼" BOLT
STRAP SCREWED ON
90°
2
SIDE ELEVATION
DEVICE CAN BE ROCKED ON ANY SHAPED MATERIAL, ROUND OR SQUARE THAT CAN BE SUPPORTED TO ALLOW STRETCHER TO TIP TO CORRECT ANGLE
1" x ⅛" IRON STRAP
STRETCHER
REMOVE WING NUT SWING BACK HINGED STRAP SLIP BOLT THROUGH MESH OF STRETCHER SWING BACK STRAP & TIGHTEN WING NUT
3
4
ROPE LOOP
METHOD OF ROCKING BY MEANS OF ROPE LOOPED UNDER DEVICE & OVER ANY OBJECT THAT CAN TAKE THE WEIGHT JOIST, BOUGH OF TREE &c.
5
IRON BAR
METHOD OF ROCKING ON IRON BAR
HOLE TO RECEIVE BAR BORED IN FRAME OF RESCUE LORRY. BAR SLIPPED IN WITH ABOUT 3 FEET PROJECTING, HELD STEADY BY CANTILEVER EFFECT. DEVICE RESTS ON BAR, ROCKING PROCEEDS.

BRITISH MEDICAL JOURNAL
LONDON
SATURDAY NOVEMBER 6 1943

PENICILLIN IN THE U.S.A.

Penicillin is being manufactured on a large scale in the United States under a contract with the Office of Scientific Research and Development, and the study of its therapeutic use is in the hands of 22 groups of investigators appointed by the National Research Council. Their combined results in a total of 500 cases have now been published[1] in summary form, and papers on the treatment of individual conditions and giving more details are foreshadowed. This laconic and formidable report does not greatly amplify knowledge except in one particular; but by sheer weight of numbers it carries penicillin treatment to a more assured position than it possessed before, and to anyone who has not followed the progress of this work it must seem even more impressive. Of seven conditions chosen for treatment the first was staphylococcal septicaemia: 91 cases have been treated, in 54 of which there was complete recovery or striking improvement. That there should have been 34 deaths may seem disappointing, but some of these cases were inadequately treated either owing to shortage of supplies or because dosage had not then been defined, and some had complicating conditions such as extensive burns, endocarditis, uraemia, and cancer. Among 137 cases of staphylococcal infection without bacteriaemia were 55 cases of osteomyelitis, the others having empyema, burns, and various infections of skin and subcutaneous tissues. Of these 109 recovered or improved, but this series cannot be fully appraised in the absence of information about the form of treatment and dosage. It is easy but extravagant to cure a localized infection by systemic treatment, and difficult but praiseworthy for its economy to do so by local application: how many of these cases had local treatment only is not stated. The results in 33 sulphonamide-resistant streptococcal infections, mostly due to *Str. pyogenes* and varying greatly in nature, were generally favourable: this series is small, and again details of treatment are necessarily lacking. There were 76 cases of pneumococcal infection, and perhaps the most encouraging feature among these is the response of sulphonamide-resistant pneumonia to moderate doses—less than 100,000 units given over a period of only 2 or 3 days. There were only 7 recoveries among 21 cases of pneumococcal meningitis, but some of these appear to have been treated before it was understood that penicillin does not enter the cerebrospinal fluid from the blood stream, and that intrathecal injection of penicillin solutions is safe and effective.

There remain two conditions in which the treatment was respectively a dismal failure and a success more complete than in any of the infections hitherto mentioned. Only 17 cases of subacute bacterial endocarditis were treated: 4 patients have died, 10 were unaffected and therefore presumably will die, while of 3 who showed improvement 2 relapsed soon after treatment was stopped. It seems that endocarditis of whatever kind is an unfavourable field for penicillin treatment: 9 cases of staphylococcal septicaemia with endocarditis all died, and of 6 having pneumococcal endocarditis only 1 recovered. In contrast to these depressing findings are the results which have been achieved in gonorrhoea. It was made known in the observations published from Oxford two years ago that the gonococcus is very highly susceptible to penicillin *in vitro*, and clinical trial has been deferred in this country only because other conditions than gonorrhoea have an immeasurably greater claim on the scanty supplies available. We now have the answer to this question in quite unequivocal terms. Only sulphonamide-resistant cases were treated, to the number of 129: with the exception of 4, which apparently relapsed later, these cases were all cured by a few intramuscular injections of penicillin. Whether about 10 moderate doses or only 3 large ones are preferable has not yet been decided, but in any case the treatment takes not more than 48 hours and not more than 160,000 units of penicillin: even less time and material may serve the purpose.

A practically certain, very simple, and exceedingly rapid cure for the most difficult case of gonorrhoea seems almost too good to be true, but one could wish that it had been found in the shape of almost anything but penicillin. A demand from this quarter competing with the claims of antisepsis in battle wounds must present a dilemma of peculiar difficulty. There is so little immediate prospect of securing adequate supplies of penicillin that every addition to its uses must create further disappointment and increase perplexity in its allocation.

[1] *J. Amer. med. Ass.*, 1943, **122**, 1217.

HOSPITAL PARTNERSHIP FOR SCOTLAND

North of the Border the question of hospital provision brings in rather different considerations from those which rule in England and Wales. For one thing, Scotland has a different tradition of local government; independent powers have been more freely entrusted to small municipalities. Scotland has also a peculiar distribution of population. Thus a division into five hospital regions, pivoting on the four medical schools and Inverness, is more or less accepted; but one of those regions, the south-west, contains more than half the total population of Scotland, and includes the most densely crowded Scottish city as well as almost the emptiest of its Highland spaces. Perhaps native circumspection has also to be considered. At all events the collaboration of voluntary and local authority hospitals in Scotland is nothing like that obtaining in some areas of England, and both sides approach the matter with caution. On the other hand, the Scottish characteristic of thrift has not manifested itself to any great extent in the form of the contributory schemes movement, and, again, Scottish voluntary hospitals do not generally attempt to recover treatment costs from their patients.

Last year a committee under the chairmanship of Sir Hector Hetherington was set up by the Secretary of State

for Scotland to consider the post-war development of a comprehensive hospital service on a regional basis. The main task of the committee, which has now reported,[1] has been to work out a method of partnership between voluntary and statutory hospitals. It is assumed that the dual system will continue after the war, but closer co-ordination will be needed if the comprehensive hospital service available to all, which the Minister of Health announced two years ago as the Government policy,[2] is to come about. To fuse into a coherent whole a local authority system, with its elected representatives and its public finance, and a voluntary system, with privately governed units, is no simple task, but it is assisted by the likelihood, as the committee judges it, that voluntary hospitals after the war will not be able to continue to offer the volume and range of their former service on the financial resources then available to them. They will need public grants, and a condition attaching to such grants will be that they must consult any regional body which is set up and adapt their programmes to a regional policy.

Many meanings attach to the word "voluntary." This committee defines a voluntary hospital as one which is not governed by any agency of central or local government, though it immediately goes on to describe as an encroachment on the voluntary principle the tendency of industrial contributors to seek representation on hospital boards—a form of consumer representation—which on this definition still does not make the hospitals any less "voluntary." One difference between the two types of hospitals is that voluntary hospitals do not as a rule pay their senior medical staffs, though, again, this tradition of honorary service is thought by the committee unlikely to persist: it would be an impediment to any partnership to have one set of hospitals continuing to work with an unpaid and the other with a paid medical staff. On the other hand, the committee thinks that the organization of local authority hospitals is in need of review. They should assign full clinical responsibility to the heads of their several clinical units, and the senior medical staffs should have independent corporate access to the governing body. In other words, let the voluntary hospitals treat their staffs financially in the same way as local authority hospitals, and let the latter accord to their staffs the status now enjoyed by the staffs of voluntary hospitals.

In addition to providing for interhospital co-operation, the Hetherington Committee has had to think out means for the collaboration of local authorities, for in the west of Scotland at all events no local authority, except Glasgow, is sufficient unto itself. The answer is found in the establishment of regional councils, which the committee thinks should be advisory bodies, though the Scottish Committee of the British Medical Association and the Scottish Branch of the British Hospitals Association hold that they should have executive powers. But the part taken by regional councils in hospital administration must not be regarded as unimportant nor reference to them as a matter of perfunctory routine. The committee suggests councils having equal numbers of representatives of local authority and of voluntary hospitals, with an independent chairman and a salting of medical and medical-educational interests. The councils will first study reports on the needs and resources of their regions and the schemes propounded by the local health authorities, and will formulate a plan on which the Secretary of State will give his decision. Other functions of the regional councils will be to set up admission bureaux, under medical direction, to distribute patients among the various hospitals, to keep statistical records, and to influence the filling of the more permanent medical appointments. It is suggested that the final appointment should remain with the governing body of the hospital, but the governing body would receive a short list of candidates from a regional appointments committee, which would have enough prestige to make its recommendations acceptable. Altogether, the regional councils are to have such power that it is difficult to see how they can be purely advisory.

To finance the hospitals the committee proposes a compulsory contributory system. A payment of threepence a week is suggested, but this would meet only a fraction of the requirement and would need to be supplemented by Government subsidy. In this way it is reckoned that 60% of the total cost could be met. A central hospitals fund would be established and allocations made by the Department of Health both to local authority and to voluntary hospitals. The local authority hospitals would obtain the rest of their money from rates and Exchequer grants. The voluntary hospitals should be able to make up the difference as to three-fifths from their "voluntary" income and endowments, and as to two-fifths from public funds.[3] The committee is anxious to preserve what may be called the "stimulus value" of the voluntary income which has supported up to now a couple of hundred voluntary hospitals in Scotland. But unconditional gifts and legacies cannot be expected to continue if their only object is to ease the local rates; they must be made to serve a distinctive purpose in hospital economy. It is suggested, therefore, that upon this voluntary income should be thrust the responsibility of providing funds for development. The shaft of the knife will be the allocated income from public funds, but the cutting edge will be the charitable contributions. It is felt that it should be left to the voluntary hospital to dispose at its own discretion of a substantial proportion of its voluntary income upon new enterprises. One passage in the report is very illuminating. In arguing that the voluntary principle, as expressed in the contributions of the charitable and the public-spirited, should be conserved for objects in line with the traditions of voluntary hospitals, the committee says:

"One of the main virtues of the voluntary system, and one which it is in the public interest to preserve, is the comparative freedom with which it can try out new techniques, new equipment, and new methods of

[1] Report of the Committee on Post-war Hospital Problems in Scotland. Cmd. 6472. 1943. Edinburgh: H.M.S.O. (9d.)

[2] House of Commons, Oct. 9, 1941.

[3] Estimated annual post-war expenditure of 219 voluntary hospitals in Scotland £3,000,000

Payment from central hospitals fund (60%) ..	£1,800,000	
Interest on endowments (part)	£360,000	
		£2,160,000
		£840,000
Grants from local authorities and maintenance payments	£336,000	
Voluntary income, free legacies, and endowment interest (part) (at hospitals' discretion for new development)	£504,000	

treatment which are promising but which have not reached a stage at which a public authority can or ought to be readily induced to incur the expense of introducing."

One hardly expected to find in a report which seems rather inclined towards the public authority point of view such a testimonial to private enterprise and such an implied criticism of the unadventurousness of official medicine.

MATERNAL AND CHILD HEALTH

Prof. James Young has surveyed the wide field of maternal and child health in the Honyman Gillespie Lecture he delivered at the Edinburgh Royal Infirmary last July.[1] Among other matters he emphasized the need for a much closer liaison between university medical schools and the public health services. Edinburgh has led the way in this respect, for a Chair of Child Health and Life was established in 1931 with Prof. Charles McNeil as its incumbent. Durham has recently followed suit. But London with its teeming millions and many medical schools has lagged behind. Were not traffic lights, trolley buses, etc., introduced in smaller cities some years before they appeared in the Metropolis? It is this cloak of conservatism hanging over the premier city of the Empire that irritates and at times exasperates the visitor. The idea of the combined school of maternal and child health is one which should be supported widely. The maternity hospital is preferably associated with the general hospital with all its ancillary services. This unit should be the common meeting-ground for teachers of obstetrics and child health. The proper study of the child is the child and the woman who bears and rears that child. The welfare of the mother during pregnancy is of paramount importance. After birth the health of the mother during lactation and later will profoundly influence the well-being of the child. Thus maternal and child health are indivisible and the professors of both subjects need to collaborate over a large common field, including nutrition, mothercraft, and the various social services that relate to family life and stability.

The paediatrician should be welcomed in the obstetric unit—in fact, invited to supervise and be responsible for all the infants. Yet there are still maternity units where he is looked upon as an intruder. It is more usually the senior sisters, inflexible and obscurantist, who are to blame in this respect. So often the paediatrician is called in when the infant is moribund. If there is to be any diminution in the annual wastage of infant life in this country (about 18,000 neonatal deaths and 25,000 stillbirths) then the paediatrician must have full control over the infant, normal and abnormal, from the hour of its birth. He must formulate the procedure for the feeding of the infants, for the care of the premature and the treatment of the infected babies. It must no longer be left to sisters and junior residents to make weighty decisions of this kind. We cannot hope for any improvement without combined operations on the obstetric and paediatric fronts.

Many will agree with Prof. James Young in his plea for the representative of the local authority, the medical officer of health, being included on the academic council. In this way all the health services in a given region could be unified with benefit to all groups. A mass of clinical material which is not now utilized for teaching and research would thus be made available. By this arrangement the professors of obstetrics and child health would be made responsible under the medical officer of health for the clinical care and control of the mother and children of the area. A new era in the history of the medical schools would emerge, since all those wide social activities of the health authority that are related to the mother and child, such as mothercraft, nutrition, health education, etc., would be linked up with the teaching centre. For too long has there been a divergence between the workers in the municipal clinics and those in the hospitals. All too often does one hear of lack of cohesion. The artificially fed baby leaves hospital on a particular feeding regime and then is put on an entirely different one at the welfare clinic. The hospital has one system for ante-natal supervision, the municipal clinic another. The mother leaves the hospital where she has been confined and is examined post-natally by one who has no knowledge of her previous obstetric history. All this could be avoided if there were a common directorate and more team-work. There should be an exchange of duties so that, as Prof. McNeil has aptly said, the deadening effect of the treadmill of clinics could be avoided.

Under a partnership between university and local authority what a vista opens out, and what could be achieved for the benefit not only of mothers and children but of all members of the community! Prof. Young's plan is not premature, but it will need assistance in its delivery, which should not be too difficult unless obstructed.

[1] *Edinb. med. J.*, 1943, **50**, 474.

"BRITISH JOURNAL OF INDUSTRIAL MEDICINE"

In January of next year we hope to add to the specialist journals published by the B.M.A. one which many felt should have been among the list of medical periodicals long before this—a journal of industrial medicine. Many informal talks on the need for such a journal have taken place during the past few years, and the final stimulus to action came in the shape of a formal request to the B.M.A. from the Association of Industrial Medical Officers, a body which has worked valiantly to promote the interests of industrial medicine. An editorial board was formed, and the names of five or six men put forward who would be willing to act as editors, under Sir Henry Bashford as editor-in-chief. For nearly a year Sir Henry has in fact been hard at work in preparing the ground, and more recently in assembling material for publication in the first issue, to appear in January, 1944. In view, however, of his new appointment as Medical Adviser to the Treasury, he finds himself unable to continue the task of editor-in-chief, and it is anticipated that Dr. Donald Hunter will step into his shoes. Sir Henry will remain associated with Dr. Hunter in the editorial work, together with Dr. A. J. Amor, Dr. M. W. Goldblatt, Dr. D. C. Norris, Dr. Donald Stewart, and Mr. R. W. Watson-Jones. A distinguished and representative editorial board will support the editors with advice and encouragement and assist them in the formulation of policy.

One of the benefits of war to medicine is that it uncovers defects, whether in administration or in knowledge, and stimulates the medical profession to make these good. Apart from the devoted work of the medical inspectors of the Factory Department of the Home Office, the doctor has been a stranger in the world of industry in this large industrial country, possibly because the medical profession itself has been too preoccupied with the treatment of disease in the individual to the neglect of the wider questions of preventive medicine, both in the community generally and in industry in particular. With some notable exceptions, industrialists have been unimaginative in the matter, and only lately have realized the money value to industry of good health in the worker. Since 1939 the country has been overwhelmingly conscious of the extent to which it owes its safety to the health of the worker in industry; and in preserving this medicine must needs be of first account. Industrial medicine is not just industrial toxicology; in fact, industrial toxicology is but a small part of its subject-matter. There is a whole range of problems facing the worker, the management, and the doctor: the effect upon the worker and his work of temperature and humidity, of the intensity and direction of illumination, of posture and change of posture, of rest pauses and recreation, of washing facilities, of canteens, of an efficient accident service—not to mention the important psychological problems of monotony, relationship between foreman and worker, selection for work, and so on.

The value of the doctor in industry is now past dispute, and the future will probably see a rapidly growing body of knowledge coming from industrial medical officers, for they have an unrivalled opportunity for watching the effects of environment upon health, and also of teaching the people of this country the elements of hygiene—and if there was ever doubt about the need for this, experience during the war has dispelled it. From industrial medicine we shall hope to see a steady flow of original observation and research that will enlarge the frontiers of medical knowledge. Much of this work will, we hope, find its way into the columns of the *British Journal of Industrial Medicine*.

COCCIDIOIDOMYCOSIS

Coccidioidal granuloma (coccidioidomycosis), discovered by Rixford and Gilchrist in California in 1894, following a similar discovery by Wernicke and Posadas in Argentina in 1892, is a chronic granuloma-forming disease, sometimes presenting massive hypertrophic lesions of the skin or large subcutaneous cold abscesses. The lungs are very frequently involved; the spleen, liver, and osseous system, less frequently; and the genito-urinary and central nervous systems, occasionally. In its clinical features and morbid histology the disease resembles tuberculosis, the place of the tubercle bacillus in the lesion being taken by the large coccidium-like parasitic sporangium of the causal fungus, *Coccidioides immitis* (Stiles, 1897). For nearly half a century the disease was recognized only in the coccidioidal granuloma form, which is almost invariably fatal. It has an endemic distribution in small areas in the south-western States of America, about 89% of the cases occurring in California, where since 1928 the disease has been notifiable. About 46 new cases of coccidioidal granuloma are reported in the State annually, and the San Joaquin Valley is one of the worst endemic centres. There is little precise knowledge of its epidemiology, but the disease is not ordinarily transmitted from man to man, and infected migrants from endemic centres do not cause new foci of infection. Rare sporadic infections of cattle, sheep, and a dog have been recorded, but are regarded as accidental. The frequency of pulmonary involvement points to infection by inhalation, and the relatively high incidence of the disease among agricultural workers and the remarkable skin lesions may suggest infection through the skin. Both these views are consistent with the discovery of the fungus in the dusty soil of a Californian ranch by Stewart and Meyer[1] in 1932. The recent notable advance in knowledge of the disease dates from 1937, when Dickson[2] identified in the "valley fever" of the San Joaquin Valley a relatively mild and hitherto unrecognized early stage of the coccidioidal disease. The symptoms are chiefly referable to the respiratory system, with fever, sweating, malaise, debility, and in some cases an exanthem like erythema nodosum. The incubation period, as shown by a group of people who contracted the infection during two days' exposure in an endemic area, is between 9 and 14 days. This early stage, in which recovery may be spontaneous, responds well to chemotherapy. The name "coccidioidomycosis" has been adopted, as coccidioidal granuloma is only a late and usually incurable stage of the disease.

The use of the "coccidioidin" dermal hypersensitivity test has carried the epidemiological study a stage further and shown that between 70 and 80% of apparently healthy persons who had lived for ten years in the San Joaquin area were specifically sensitive. The diagnostic value of the test is not proved, and confirmatory clinical, mycological, or radiographic evidence is desirable. Using this test, Aronson and his associates[3] in 1942 got positive reactions in 90% of 141 Red Indian school children in the San Carlos Indian Reservation, Arizona, where coccidioidal granuloma was not known to occur. Following this discovery, Emmons and Ashburn[4] in 1942 examined the desert soil in the San Carlos area and isolated *C. immitis* from 5 out of 150 samples taken from three widely separated sites. However, the high pathogenicity of the fungus for man and its rather meagre distribution in the soil pointed to something more than a wholly saprophytic existence in the desert, and attention was directed to the possibility of a reservoir of the infection in the small burrowing desert rodents common in the area, some of which were known to be susceptible to experimental infection. Among these the naturally acquired coccidioidal disease was identified microscopically and by culture in two species of "pocket mice" and one species of "kangaroo rat." These rodents seem to form a reservoir of the disease from which the soil is continually contaminated. In the wet season the fungus vegetates saprophytically in the soil, and in the dry season the wind-blown spore-laden dust carries the infection to man.

The new light on the epidemiology of the disease and the discovery of an early and curable stage have greatly improved the prospect of the eradication of coccidioidal granuloma.

Many members who are in touch with Headquarters will have heard already that Dr. G. C. Anderson had a severe and very painful heart attack on Oct. 23 and was taken from B.M.A. House to hospital, where he must remain for some time to come in absolute quiet. Dr. Anderson deeply appreciates the many messages of friendship and sympathy that are reaching him, but he may see no visitors at present and is forbidden to attend to any business until he is well enough to return to duty.

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[1] *Proc. Soc. exp. Biol.*, New York, 1932, **29**, 937.
[2] *Calif. West. Med.*, 1937, **47**, 151.
[3] *Arch. Pathol.*, 1942, **34**, 31.
[4] *Publ. Hlth. Rep.*, Wash., 1942, **57**, 1715.

Reports of Societies

THE DOCTOR IN THE STATE: ANCIENT AND MODERN

The presidential address in the Section of Epidemiology and State Medicine of the Royal Society of Medicine was delivered on Oct. 22 by Sir WELDON DALRYMPLE-CHAMPNEYS, who gave a historical survey of the place of the doctor in the State from ancient times to the present day. Among those present were the Minister of Health (Mr. Ernest Brown), the Presidents of the Royal Colleges of Physicians and of Surgeons (Lord Moran and Sir Alfred Webb-Johnson), the President of the Royal Society of Medicine (Sir Henry Tidy), and the President and the Chairman of Council of the British Medical Association (Lord Dawson of Penn and Dr. H. Guy Dain).

Sir Weldon Dalrymple-Champneys began his survey with the primitive "medicine man." Most of them, he said, were inclined to despise this father of the craft, but Sir James Frazer, author of *The Golden Bough*, considered that, taking it all in all, he had done more good than ill to medicine and surgery. It was in this most primitive form of organized society that the doctor occupied the highest position in the whole of history, and yet never was choice of doctor less free! In the early stages of Chinese civilization the profession was at first represented by priests and sorcerers, but the medical student must ever bear China a grudge for having invented (tenth century B.C.) medical examinations. Babylonian medicine was mainly demonistic, but it had a remarkable scale of rewards and punishments, as witness the code of Hammurabi. The ancient Persians also had a scale of charges and bribes for doctors, and medical students were urged to "get their hand in" by practising surgery on unbelievers. In India the status of the physician was refreshingly elevated, especially during the Brahmanic period. In Egypt one of the remarkable features of its early civilization was the manner in which the details of public and private hygiene were regulated by ordinance. Moses not only adopted the numerous Egyptian dietetic rules but carried out careful researches of his own which he embodied in his code, to the great benefit of the Israelite people.

Sir Weldon then came to the fascinating spectacle of medicine in Greek civilization. Homer told how doctors were held in high esteem in the earliest days of Greece. The original Greek doctors were the priests of Aesculapius. In the fifth century B.C. arose the superb genius of Hippocrates, the first to trace disease to recognizable and intelligible causes. After referring to the famous school of Alexandria with its unique library, he referred to the medicine of ancient Rome, which provided a much poorer soil than Greece for the cultivation of medical practice. At the beginning of the Augustan age doctors still occupied a lowly place, and Rome was a happy hunting ground of quacks, but by the time of Constantine court physicians had become established, and there were medical officers for each district of the city, as well as for special classes like the vestal virgins and the gladiators. Of Arabian medicine he said that one of its great services was the establishment of well-endowed hospitals, the first of which was in Baghdad. It was in the Middle Ages that an important change affecting medicine was brought about by Christianity. Even Hippocratic rule enjoined the doctor not to treat the incurable case, but Christianity reversed that.

After touching on the sources of medical learning in mediaeval Spain and Italy, and giving some account of the school at Salerno and the guild of physicians and apothecaries established at Florence in the twelfth century, Sir Weldon sketched the story of English medicine from the foundation of Oxford and Cambridge. The Royal College of Physicians was founded in the tenth year of the reign of Henry VIII, but even in those relatively enlightened days the apothecary was still a variety of grocer, the surgeon a variety of barber, and the physician just ceasing to be an ecclesiastic.

And so to the General Practitioner

The general practitioner of the eighteenth and nineteenth centuries in England was a man of keen observation, great independence, and one intimately acquainted with the life of his patients. In modern times two great changes had profoundly affected the life and work of the general practitioner—namely, the inventions and discoveries in physics and chemistry which had a bearing on practice, and the awakening of the social conscience to the demands of public health, with, in consequence, the ever-increasing concern of the State for the preventive aspects of medicine. Probably the most radical of these changes from the general practitioner's standpoint was that effected by the introduction of national health insurance in 1911. What was surprising was that a system which aroused such antagonism at its beginning should have now established itself so firmly in the affections of the profession in the course of 32 years that a large section regarded the extension of its provisions to practically the whole population as the best way of bringing about a comprehensive medical service. It was generally agreed that the separation of much of the work done at clinics from the general supervision of the family doctor was unfortunate. The ideal arrangement would be continuous medical supervision of the individual from conception to death by the same person, and the preservation of the family unit as the basis of the general practitioner's work.

In conclusion Sir Weldon Dalrymple-Champneys pointed out certain lessons which were to be learned or certain warnings to be heeded from the survey of history. One of these was that decadence in medicine had coincided with the rising of specialties based on insufficient knowledge. Was it certain that this might not recur? Even in these enlightened days they knew of manufacturers launching new remedies on the markets, backed by extravagant claims not justified by scientific investigation, and doctors snatching at them in the hope that they might benefit a patient whom nothing else seemed to cure or even alleviate. The only sure defence against overspecialization was to give the general practitioner a dominant share in the care of the patient, but to fit him for that position he must be rightly educated.

The prevention of disease had a compelling appeal if presented by teachers who had the right outlook on health and disease. He refused to believe that the medical student of to-day—the brother of the radiolocationist—was incapable of feeling the fascination and satisfaction of detecting the first glimmering of ill-health in a patient and of adjusting the patient to the environment with the same pride and accuracy as the skilled member of the R.A.F. maintenance crew adjusted his instruments. No one expected the general practitioner to be an expert in environmental hygiene or in epidemiology, though he should be familiar to some extent with those subjects. But if he was to do his duty as the guardian of the patient's health he must know three things: his patient's heredity and environment; his medical history and present condition; and all the agents, including not merely methods of treatment but also the public and private organizations, which could be invoked to restore him to a normal or at least to a better condition. "I am convinced that the medical practitioner to-day is presented with a wonderful opportunity, which if neglected may never recur, of occupying a key position in medicine and in the State, and from that position, of exercising an incalculable influence for good on the health and happiness of his fellow-countrymen and winning for himself an abiding interest and satisfaction in the greatest of all professions."

Correspondence

Stomach and Mind

SIR,—The facts of the incidence of peptic ulcer and dyspepsia in the Army so ably presented by Sir Henry Tidy (Oct. 16, p. 473) are of the highest interest to clinicians and epidemiologists. They indicate most effectively how these disorders can be comprehended, treated, and prevented only if a psychological approach is employed to supplement a physical approach. The real conclusion of the paper—namely, the need for psychosomatic medicine—is not, however, mentioned by Sir Henry, who fails to emphasize (surely not to recognize?) that an isolated somatic approach to these disorders neither fits the facts nor works in practice—indeed, is not scientific in that by itself it can never make sense but only a kind of nonsense. Thus we find Sir Henry recording his experience of treating dyspepsia in such sentences as: "It is most important that these men should not be sent to hospitals or to specialists—procedures which are apt to convert a transient into a chronic dyspeptic and finally into a useless soldier"; and, again, "The longer the period in hospital the shorter is the interval to the next recurrence." In the absence of any qualifying psychological interpretation these extracts sound very queer indeed—the first like a passage from a manual of Christian Science and the second like an authentic quotation from *Alice in Wonderland*.

Yet the facts provided by Sir Henry do make a lot of sense when, and only when, a psychosomatic viewpoint is introduced. No more than a mere indication of this can be given in a letter, but observations such as the following would allow the facts to fall into place and permit of an interpretation which is coherent and not incoherent.

In civilian practice (and indeed in one's own personal life) sudden changes in climate, personal surroundings, food, and

degree of bodily exertion are frequently associated with disturbances of the gastro-intestinal tract, which represent the adaptation of the organism in both its physiological and psychological aspects to a new total situation. Sir Henry's observation that the treatment of such disturbances in hospital or by medical specialist serves to fix the symptoms and induce invalidism suggests that in adaptive dyspepsia psychological factors are on the average of greater aetiological importance than physical factors.

The gastro-intestinal tract may be profoundly disturbed in its function (and this in its end-results may bring about organic change) in the course of deep-seated emotional experiences. This has been beautifully demonstrated by Wolf and Wolff (*J. Amer. med. Ass.*, Oct. 31, 1942) in their account of the changes in stomach function directly observed in a man who had a gastric fistula. When this individual was free from upsetting emotional states, the appearance and secretion of the gastric mucosa could be described as normal; when he was under the influence of fear and sadness, the gastric mucosa was pale, with inhibition of secretion and contraction; but when he was involved in moods of anxiety or resentment, there was accelerated acid secretion with hypermotility and engorgement of the mucosa resembling hypertrophic gastritis. If the latter moods were sustained the vigorous contraction of the stomach frequently induced small bleeding-points. It is obvious, therefore, that the appearance of the stomach as seen by the gastroscope may depend on the inner emotional state of the patient at the time of examination, and that the findings of gastroscopy may be anomalous in the absence of psychological understanding of the patient.

Psychosomatic research has shown that the aetiology of peptic ulcer cannot be understood if psychological investigation is omitted, and that treatment which ignores psychological factors is impotent to prevent recurrence. It has also been shown that persons developing peptic ulcer tend to have particular characteristics—notably that of being unduly susceptible to threats to their emotional security, as is instanced by the occurrence of ulcer at times of occupational, financial, and domestic embarrassments. (Such threats are intense in the Army considered as a social field.) As regards epidemiology, it is also known that many "psychosomatic disorders" have shown a remarkable increase since the last war. This was demonstrated in the morbidity statistics of the insured population of Scotland, when not only peptic ulcer but also neurosis, gastritis, pseudo-rheumatism, etc., showed a remarkable relative increase as a cause of chronic incapacity (Halliday, *British Medical Journal*, July 2, 1938). The upward trend of those affections may be attributed to the increase of the noxious factors of social environment during the period. There are reasons to believe that these factors affected males relatively more than females (see Mittelman *et al.* in *Psychosomatic Medicine*, Jan., 1942).

To conclude, Sir Henry's record of the incidence of dyspeptic disorders in the Army is a valuable contribution to psychosomatic and to social medicine in that it demonstrates in respect of these affections how a purely "somatic" approach is inadequate as a method of interpretation, and how, if uncomplemented by a psychological approach, this outlook *per se* proves ineffective as a guide to therapeutic and preventive measures.—I am, etc.,

Glasgow. JAMES L. HALLIDAY.

D. and V. and Mastoiditis

SIR,—Dr. P. W. Leathart (Oct. 23, p. 526) has allowed his enthusiasm to outstrip his logic. He says: "In all cases in which bacteriological examination of the faeces proves the absence of a specific organism the diagnosis is incorrect and that of mastoiditis should be substituted." There seems to me more of dogma than of science in this confident assertion. The implications are that (*a*) all pathogens are demonstrable by routine bacteriological technique, and (*b*) where none is detected then mastoiditis exhausts the possible causes of D. and V.

Now with regard to (*a*), what would Dr. Leathart think of a police officer who said: "Sir, though you assert that you have been burgled that is quite impossible, since all the thieves known to us are accounted for and we have caught nobody"? A virus would not be discovered in a plate culture made from faeces. Secondly, despite negative bacteriology, "non-specific" gastro-enteritis is an infectious disease. Few with experience of infant welfare would deny that it can spread through a ward or nursery almost as quickly as the common cold, which, for all Dr. Leathart or I know to the contrary, may well be due to the same agent. I do not understand how a germ can hop from one baby's mastoid into another's.

As for (*b*), without doubt violent gastro-enteritis with ulceration and destruction of large areas of gut does occur in many "non-specific" cases. Is Dr. Leathart acquainted with the cause or causes of ulcerative colitis? And would he recommend mastoidectomy for the relief of arsenical poisoning? The not unreasonable supposition that the mastoiditis may be secondary to an infection of the nasopharynx or to the act of vomiting, whereby septic fluid is squirted into the middle ear, seems to have been ignored, and as for the "parasympathetic reflex," why does this fail to manifest in mastoiditis complicating measles, etc.? Certainly the statement that otitis media with or without inflammation of surrounding bone does occur in association with D. and V. is not impugned, nor do I comment on the desirability of operation in such cases; but I must point out that the precise role of this factor in the total symptom complex has not yet been accurately assessed.

There is much fog about, but let us keep our heads. Fanaticism no less than apathy can lead us on to the rocks.—I am, etc.,

Grove Hospital, Tooting. J. B. ELLISON.

Contraception and Sterility

SIR,—If the case that contraception induces sterility is based on the theory that certain methods may prevent absorption of semen from the vagina, we should surely consider this to be equally an argument against the "long engagement," which is so often the alternative to marriage with contraception; and indeed against the practice of pre-marital celibacy at all.

The contention that seminal absorption is necessary for stimulating fertility in some women is interesting, although there seems nothing in the breeding habits of the animal world to support it. Its verification would clearly rest with the research worker and statistician. I do, however, feel that the evidence Mr. Green-Armytage adduces could hardly be accepted as final. Some recent animal experiments he describes have been "unchallenged"—but there is not likely to be a plethora of workers with similar facilities eager and able to check up such matters. Nor, necessarily, is the quotation of views—from mainly American sources—to be taken as final arbitration. A similar number of opposing views, with or without context, can naturally be cited.

If any physician were to tell his patients that, say, the ingestion of tinned food is responsible for increasing sterility, there might well be none ready to enter the lists of experimental challenge. This would not imply that the doctrine was correct or generally accepted, yet the view would spread rapidly among the lay public, and would doubtless be still prevalent in twenty years. Mr. Green-Armytage is teaching his medical students and patients that contraception impairs fertility, and an anxiety is being fostered which is spreading rapidly, and which it is nobody's business to prove or disprove.

If it appears essential that data on this matter are produced, I am told that the Family Planning Association might be willing to accept the onus. Among its contraceptive clinics there are some hundreds of thousands of case records from which part, at least, of the data could be deduced. Taking multiparous women who have given a history of "no previous methods of contraception used," the time from the date of marriage to the first childbirth could readily be found. Others who give a history of previous contraceptive methods could, as they attend the clinics, be asked how many months had elapsed since their disuse and the subsequent conception. A few hundred records could be collected quite shortly, although the investigation would entail work and expense. If Mr. Green-Armytage would like himself to choose the statistician, I am sure the Family Planning Association would be in every way agreeable.

I do not find it possible to agree about the valuelessness of small clinics for advising on involuntary sterility. Mr. Green-

Armytage enjoys the facilities of a fully equipped central hospital, but this cannot solve the problem of the provincial or country woman whose vicinity very frequently offers no facilities at all. The increasing demand for this service throughout the country will obviously be met, sooner or later, by the equipment of proper "sterility units" in all provincial hospitals. But at the moment such facilities are sadly lacking. In many localities arrangements for seminal examination are absent or little short of archaic, and when abnormalities are found the "andrologist" who takes an interest is simply non-existent. Such conditions will doubtless be remedied within a few years. Meanwhile the small clinic, though its scope may often have to be limited, is giving a very real service to barren women, and one which it seems entirely unfortunate to disparage.—I am, etc.,

London, N.W.1. JOAN MALLESON.

Sterility and Artificial Insemination

SIR,—Now that your columns are so full of letters on sterility, subfertility, and their treatment, it would appear to be opportune to point out that all the necessary investigations can be done in the out-patient department without giving the woman an anaesthetic—a fact which does not seem to be appreciated by a number of doctors.

Patency of the Fallopian tubes can be ascertained either on the *x*-ray table after injecting lipiodol, or on the couch in the out-patient department by utero-tubal insufflation without any previous preparation. The days immediately before or after menstruation should be avoided. Likewise with the patient on the out-patient couch an endometrial biopsy can be taken or cervical secretion aspirated for examination for live spermatozoa. It is as well to have a room available where the woman can wait for a few minutes should she feel any temporary discomfiture.

Regarding artificial insemination, much has been said from the woman's point of view, and Dr. Pearse Williams (Oct. 16, p. 496) has mentioned the husband's point of view when he finds his wife is sterile, but little has been said from the husband's point of view when he finds that he is incapable of giving his wife one of her greatest desires. I have on several occasions been approached by the husband to ask if an artificial insemination could be performed on his wife from a donor, because he cannot bear the fact that he is the cause of his wife's disappointment, and he argues that he would rather have a child who has a 50% chance of possessing something of his wife than adopt one that possesses nothing of either of them. Granted it is not every woman who would prefer artificial insemination to adoption, but in cases such as this, surely there can be no psychological trauma to the child, and the woman, being satisfied, would be more likely to be drawn to her husband for gratifying her desire than estranged from him.—I am, etc.,

London, W.1. M. MOORE WHITE.

Cos and Hippocrates

SIR,—It is with some hesitation that I venture to disagree with the distinguished medical historian who wrote the note on Cos and Hippocrates (Oct. 16, p. 492), but certain facts must be brought into the light.

The existence of Hippocrates is proved not only by the Dialogues of Plato but also by many other testimonies. He was considered a very great physician and universally honoured. Even the writings of later authors are sufficient evidence: (1) because they had documents which we do not possess; (2) because tradition in ancient Greece was a reproduction passed from brain to brain with far greater accuracy than has been necessary since the introduction of printed communication. We can see this high accuracy in the transmission of the poems of Homer, which were passed from brain to brain throughout the centuries and written only much later.

I agree with your contributor that there is no testimony that Hippocrates wrote the works known as the Hippocratic Collection; but certainly some other physician, probably of the same name, has given us the splendid writings which, to the reader with a medical, not philological, spirit, are remarkable (with the exception of two or three articles representing the teachings of other schools) for their unity of doctrine and method, which represent distinctly a development of those of previous medical schools, particularly Croton and Agrigentum.

I cannot agree that the medical man of those centuries was regarded as a craftsman, an assertion which does not correspond with the facts. The Greeks, and Hippocrates himself, always distinguished between the craftsman (for whom, I must say with some shame, they had no great respect) and the artist, a word which, in Hellenic mouths, indicated something very great. The physician in particular was very highly honoured. Homer speaks of him as "worth many other men." Nearly two centuries before Hippocrates three great Greek cities disputed the honour of having the physician Democedes within their boundaries, and prominent physicians received the highest civic honours. To-day the modern Greeks honour their physicians above others, and the title of "Excellency" is given in modern Greek not to Cabinet Ministers or Ambassadors but only to physicians, and not only to the Athens professors but also to the highly respected village practitioners.

As for the relation between Hippocrates and the temple of Asklepios, the following are the facts: These temples were centres of religious psychotherapy. The Greek physicians, keen and unbiased observers, respected the power of this form of psychotherapy, and in the same manner the priests of Asklepios—prominent and cultured citizens—knew the importance of organic medicine. The relations between these two kinds of healer were harmonious. Physicians usually frequented places at which there were shrines of Asklepios, and medical schools were established near these shrines for the simple reason that in the absence of large hospitals the most abundant sources of clinical material were the shrines of the god of medicine, where patients streamed from all parts of Greece.

After the first known Greek medical schools of Croton, Agrigentum, and Cyrene, there arose others at Cos, Cnidos, and Rhodes. The school of Cos is probably the most celebrated. Its teachings are concentrated in Hippocrates, who gave the highest intellectual and moral standards to our profession, and whose doctrine and method are influencing practice even to-day. Let us hope that the Greek flag will fly once more over the island, which, notwithstanding the attempts of the Italians during the last 25 years, has not lost its Hellenic spirit, and that again a wind from Cos will vivify our great art.—I am, etc.,

London, W.1. A. P. CAWADIAS.

Intercellular Hormones

SIR,—The research of Loofbourow and his colleagues discussed in the leader in the *Journal* of Oct. 16 (p. 487) threw light on the way in which ultra-violet rays used for treatment produce their beneficial effect. It is recognized that the dosage must be such as to produce damage of the living cells of the deep layer of the epidermis, resulting in desquamation.—I am, etc.,

St. John Clinic, S.W.1. LEONARD HILL.

Adolescent Spondylitis

SIR,—I was very interested in Dr. C. W. Buckley's excellent paper on spinal arthritis in young subjects (July 3, p. 4). Some of the issues raised are very thought-provoking and deserve further research and investigation into a subject bristling with so many difficulties, both as regards diagnosis and treatment.

The late Dr. Gilbert Scott[1] has done a tremendous amount of original research into what he preferred to call "spondylitis adolescens," and his conclusions after the investigation of 555 patients[2] merit the attention of all workers in this field. I am rather surprised that Dr. Buckley entirely ignored it, for he could not possibly have been unaware of the research in spondylitis which was carried on at the Charterhouse Rheumatism Clinic under the auspices of the Nuffield Wide-field *X*-ray Research.

Real advances in the diagnosis of this crippling condition began with the discovery of the changes which take place in the sacro-iliac joints 5 to 7 years *before* the onset of spondylitis in the young athletic male. In this pre-spondylitic

[1] *A Monograph on Adolescent or Ankylosing Spondylitis*, 1942, London.
[2] Bulletin of Wide-field *X*-ray Radiation, Research Report, 1939-40.

stage treatment by wide-field *x*-ray therapy offers the best chances of an early arrest and symptomatic improvement. Out of 432 patients with adolescent spondylitis treated with wide-field at the above clinic 57.11% were much improved and symptom-free, and 15% were improved.

The results obtained by wide-field *x*-ray therapy offer a far more favourable prognosis than with any other methods of treatment—e.g., rest in plaster case combined with masterly inactivity—and I think that Dr. Buckley's outlook on treatment is rather too pessimistic. I can fully confirm the results obtained by Dr. Scott with wide-field *x*-ray therapy, but during the last 3 years I have combined the above with local *x*-ray therapy plus analgesic injections into the painful areas, and with some shortening in the length of treatment and more rapid amelioration of symptoms.

Diet, rest, physiotherapy—all have a place in the treatment of spondylitis, but with the addition of *x* rays (local and wide-field) to our armamentarium we have acquired a very powerful weapon in our fight against a very crippling disease. I hope soon to publish a paper on spinal arthritis with special references to wide-field and local *x*-ray therapy.—I am, etc.,

Capetown. ARNOLD RAFF.

The Returning Service M.O.

SIR,—With regard to the recent correspondence on specialist and refresher courses for Service M.O.s, I feel that Dr. E. M. Leyland's letter (Oct. 9, p. 466) has described most clearly the difficulties and ambitions of many hundreds of the younger members of the profession who are serving in the Forces. I am certain that many, quite apart from any desire to specialize, feel the urgent necessity for further hospital experience on demobilization, but are worried as to how they will be able to obtain this with house officers' remunerations as low as they are at present.

Some of your readers may have noticed a report (*Times*, Oct. 14) on the comprehensive scheme of post-war aid which has been adopted by the Law Society. I think that the Law Society is to be congratulated on its planning and vision in devising a scheme which has these three main objectives: (1) to provide at the end of hostilities lectures and courses for the legal re-education of solicitors and articled clerks who have been out of touch with the law while on service; (2) to find employment for qualified men as soon as possible after demobilization; and (3) in the meantime to give those serving men who have time available all possible help to keep themselves up to date or continue their studies. A questionary has been sent to all known serving solicitors to ascertain their post-war needs.

The suggestions of refresher courses for Service M.O.s is but a facet, though a very important one, of the whole question of professional demobilization, which, it seems, has been somewhat neglected in the discussions taking place on the future of the profession as a whole. If the B.M.A. has a committee dealing with demobilization problems it is very silent about its activities, and if it has no such committee, I feel that the sooner it is constituted the better. The objectives of the Law Society post-war aid scheme might well be adopted, with some modification, by any such committee. The questionary idea will appeal to many.—I am, etc.,

R. E. OLIVER,
Fl. Lieut., R.A.F.V.R.

Arsenical Encephalopathy

SIR,—It is regrettable that Capt. C. B. Ainscow in his letter (Oct. 9, p. 465) disagreed with so much of our article on arsenical encephalopathy (May 29, p. 661). It is difficult in a letter of reasonable length to correct him on all the points raised. However, we hope the following will help him to a clearer view of the treatment of venereal disease.

Arsenical therapy is undertaken in pregnant syphilitic women in order to treat the foetus; treatment of the woman herself is left till after parturition. We quote the first two authorities to hand—namely, Harrison, chap. 21, and Earl Moore, chap. 19—in support of our methods. Capt. Ainscow suggests that our case of arsenical encephalopathy which recovered might well have been an eclampsia or other toxaemia of pregnancy. We stated in our article that this diagnosis was considered, but the trace of albuminuria and the very slightly raised blood pressure were against it. The consulting gynaecologist who saw the case had no doubt that there was no toxaemia of pregnancy, and we prefer his opinion.

Capt. Ainscow's objections to the treatment of the only male in our series were met by Dr. A. O. F. Ross in a letter in the issue of the *Journal* of June 19 (p. 771). This case had been treated by Dr. Ross as an out-patient, and was sent into our wards actually comatose. It was explained in that letter that in spite of the history of a penile ulcer in 1910 the case was regarded as one of primary syphilis mainly because of the rapid changes in the Wassermann reaction. Capt. Ainscow apparently did not see this letter, and therefore we would like him to read it, and to inform him that Dr. Ross is chief V.D. officer to this city and can be fairly regarded as a venereologist of repute. We cannot accept Capt. Ainscow's view that the cases we described were examples of Jarisch-Herxheimer reactions. We have always understood that these reactions occurred within a few hours or at most within a day or two after the first injection. The changes we described occurred about the tenth day, and there were no untoward symptoms till almost immediately before coma; indeed, in the case of the male nearly three weeks elapsed before disaster occurred.

In our article pathological appearances of the brain were described in the cases which came to necropsy. We could not supply similar evidence in the case which recovered, even to satisfy Capt. Ainscow's curiosity.

We would like to assure Capt. Ainscow of our gratitude to him for reading our article, but would like to suggest that he should read it again.—We are, etc.,

F. GLYN-HUGHES.
R. B. NELSON.
C. MCGIBBON.

Liverpool.

Pelvic Flexibility

SIR,—I am interested in the case of manual dilatation of the pelvis (Oct. 16, p. 484) as it draws attention to the cardinal fact that the mother's pelvis expands at the three joints—sacro-iliacs and symphysis (at the same time the foetal head packs up at the sutures). The pelvis is expanded in the act of squatting much as the chest is expanded in the act of breathing, there is a pull on all the joints, and the area enclosed is increased.

But much better than any manual dilatation are ante-natal exercises designed to stretch the pelvic joints, ligaments, and perineum in preparation for the act of birth itself. This will be easier in the natural position—squatting or kneeling—right up to the last moment, when the mother can lie down for the actual delivery. Daily squatting for defaecation during pregnancy is a great help in avoiding constipation; at the same time it makes for pelvic flexibility, not only as regards childbirth but it keeps the athlete in trim. No first-class dancer, footballer, or rowing man has a pelvis with stiff joints, or he is old before his time; and a woman with a stiff and unyielding pelvis cannot hope for an easy labour.—I am, etc.,

London, N.W.11. KATHLEEN VAUGHAN.

H 11 for Cancer

SIR,—I have read with interest the various letters and articles regarding H 11, especially as I have given a long trial to this preparation. The laboratory reports make interesting reading, but are they really important at this stage? What does it matter whether H 11 checks or does not check growths in various mice in various laboratories if it is successful in the treatment of our patients? Let us hear, therefore, more about clinical results, and leave the laboratories to themselves for the moment.

My own experience of H 11 is summarized by stating that I have had many failures and a few striking results, and the latter cannot be explained by mere coincidence. Herewith short details of one:

The patient was a woman of 58. Both breasts had been removed five years previously for carcinoma. Recurrence took place in the liver, orbit, and spine, and a huge mass grew out from the body of the ilium. She became blind in one eye, paraplegia developed, and she was rapidly going downhill. *X*-ray treatment was refused and only H 11 in its original form was given. General improvement

began to show after a month's treatment, and within six months the liver had shrunk to half its previous size, the blindness was passing off, the paralysis was no longer present, and the mass in the ilium had disappeared entirely. The patient, who had been bedridden for months, was able to get up and lead an ordinary quiet life, spending part of the summer in the country sketching. She died two years later from what appeared to be a cerebral tumour. No one could fail to be impressed by such a result, especially when taken in conjunction with others.

At the moment I can only consider H 11 to be an adjunct to other forms of treatment, surgical and radiological. It appears to be an agent which, when certain unknown factors are present, can retard or even stop altogether the growth of malignant tumours. It is relevant to call to mind the stages of the treatment of diabetes by pancreatic preparations, and menopausal conditions by ovarian extracts. Successful results were few, but sufficient to induce further and patient experiment until to-day we have insulin and stilboestrol. So with H 11. There is enough evidence of success, I think, to demand from the profession a complete investigation into the possibility of developing this substance into a reliable remedy. In conclusion I would say that a visit to the Hosa Laboratories will quickly resolve all doubts as to the earnestness and importance of the effort that is there being made to solve one of the world's most serious problems.—I am, etc.,

London, S.W.7. J. W. BARNETT.

Management of Acute Pleural Empyema

SIR,—The answers to Mr. Harold Burrows's questions (Oct. 9, p. 463) are to be found in my original paper (Sept. 25, p. 383). Dealing with non-localized empyemata, I said: "In such circumstances repeated aspiration of infected pleural effusion may be necessary. . . . In certain cases the same conditions may call for a water-sealed intercostal drain." Both these methods are effective and I use them frequently. The treatment of localized empyema may be by either open or closed drainage. Both these methods are, of course, satisfactory in the hands of those who are trained in their use. I do, in fact, frequently employ closed drainage. The point that I hoped to make was that perfectly adequate treatment could be given with the simplest possible equipment. When empyemata are being treated in general hospitals or under war conditions, often by those who have no great experience, I feel that the importance of adequate drainage by simple means cannot be over-stressed. The more we become specialized the more do I feel that we should try to simplify surgery rather than complicate it.—I am, etc.,

Leeds. P. R. ALLISON.

Desert Sores

SIR,—The article by Dr. J. M. Henderson (May 29, p. 657) on the relationship of sunlight to desert sores prompts me to put forward a possible aspect of this relationship which has exercised my mind for some time.

The effect of the ultra-violet rays of the sun in decreasing the polymorphs, increasing the lymphocytes, and causing a "shift to the left" in the polymorph nuclei, has been shown by several workers. Shaw (1936) demonstrated the latter in Egypt and Kennedy (1935) in Iraq. Pellicciotta (1939) found neutrophilopenia and lymphocytosis with a shift to the left among white residents in Africa. Stammers (1933) says: "It is an established fact that ultra-violet irradiation leads to lymphocytosis." Does it not seem probable, then, that a neutrophilopenia due to solar irradiation, further increased in many instances by the common custom among the troops of sun-bathing, may underlie the reduced resistance to infection of some trivial injury? It is interesting to note that Corkill (1939) in the Sudan recorded a relation between increased insolation and increased incidence of cerebrospinal meningitis. Although he postulated a vitamin deficiency as the connecting link, I feel that diminution in the polymorphs might have something to do with it.

As regards the treatment of desert sores, I should like to suggest the application of a wad of gauze soaked in sterile peptone broth as used in the bacteriology laboratory. Applied night and morning for a week or two it often works wonders in cleaning up dirty ulcers and promoting healing. Its efficacy makes me wonder whether the so-called "ultra-virus" preparations may not owe their action not so much to the products of bacterial growth as to the peptone broth which forms their basis. In some cases, after initial improvement an ulcer will again become "indolent," in spite of continued use of the broth. This accords with the experience of Rapport (1942), who, from his experience of treating desert sores, found that it was not advisable to persevere for longer than two weeks with any particular treatment, as the sores tended to acquire a tolerance to it. How the broth acts I do not know; possibly peptone water, or meat extract, or even saline dressings would work equally well. I have not access to sufficient cases to determine the question.—I am, etc.,

The Public Health Laboratories, Cairo. B. R. SANDIFORD.

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Dentistry as a Specialty of Medicine

SIR,—Reading in your advertisements of whole-time posts for school and assistant school dental surgeons to the councils of large counties for which about £10 a week is offered, I feel the time has come for a discussion of the following questions.

1. Is the importance of first-rate work in dentistry for children of school age as part of preventive medicine realized by the authorities or ourselves? Can such work be done by the inexperienced or the out-of-date dental surgeon? Or whom otherwise do authorities wish to attract by such salaries?

2. Is there any reason, apart from custom, to look upon dentistry as anything but a fully equal partner among the specialties into which modern medicine and surgery necessarily subdivide?

3. Is it not time that the calling of the dental practitioner is put on an equal level with that of any other branch of medicine in its curriculum, medical and social standing, and its remuneration?

4. Would it not be essential to include a dental practitioner in any experiment with group practice that may be under way?

5. Would it not be in the interests of a profession which is charged with the maintenance of health in all its aspects to end the seclusion of one branch which requires, if practised at its best, as much knowledge, skill, and disinterested work as any other?

5. Should not medicine as a profession help in removing such outlived drawbacks of and prejudices against dentistry as still exist?

7. Have not the last twenty years or so given growing proof of the importance for health of good teeth and gums and of the significance of bad teeth as indicators and causes of disease elsewhere?

8. Should not the existing professional organizations unite in consultation and action on such questions of scientific, educational, organizational, and health-political interest as constantly arise at present?

My reason for writing is this. We need more dental doctors and more of them who attain the highest standards. We cannot expect to get them unless we give this medical specialty the honour which is its due, and the partnership which, on theoretical and practical grounds, it deserves. Dental medicine and surgery are doing good work. Witness the collaboration of dental surgeons with plastic units or the outstanding book on *The Principles of Dental Medicine*, by F. W. Broderick. I myself am neither a dental surgeon nor related to one.—I am, etc.,

London, W.1. L. MICHAELIS.

Hospital Posts under Local Authorities

SIR,—The letter from Mr. Edgar W. Thomas (Sept. 25, p. 405) on appointments to hospital posts strikes a sympathetic fibre in my being. For years have I, in and out of season, striven to bring before the profession the iniquitous system of selection perpetrated on unsuspecting aspirants for appointments to the staffs of provincial hospitals.

Mr. Thomas says: "This system whereby lay committees appoint medical men to hospital and other posts is both ridiculous and demoralizing." I would point out that the fault does not lie with the lay committee: they merely go through the form of making the appointment; their crime is one of ignorance. The real appointment is made by the medical committee of the hospital; they are the "bandits behind the

scenes," who have their own nominee incubating and all ready to burst forth from the egg of vested interest as assistant physician or surgeon. He is generally a junior partner or a man who has bought the practice of a member already on the local staff: he has "bought himself in."

For years I have pointed out the injustice of this system of staff appointments and how it has grown to be a racket which brings neither honour nor efficiency to our hospitals. I agree with Mr. Thomas that the system is both ridiculous and demoralizing and a few more things as well. "Local politics" do not enter into it, but "graft," yes; and it is the medical men who are to blame. In order to break this disreputable trade in medical appointments the matter should be taken out of the hands of local committees, lay as well as medical, and placed with the Ministry of Health or other impartial body.—I am, etc.,

Bournemouth. VINCENT NORMAN.

The Classics in Medical Education

SIR,—I trust you can give me a little space to protest against Prof. Major Greenwood's conditional plea for making Latin a compulsory subject of medical pre-education (Sept. 18, p. 375). If there is any of that increasingly precious commodity time to spare, in Heaven's name let it be spent in preparing the student in a realistic way for the problems he is liable to meet. Surely a course on scientific method is likely to be much more valuable than acquiring the ability to construe the Latin authors, and, in fact, has been left far too long out of the curriculum.—I am, etc.,

London, W.1. FREDERICK DILLON.

Unity in the Profession?

SIR,—My letter (Sept. 25, p. 405) makes it perfectly clear that it is to Dr. Buchan's views on State medicine (Aug. 28, p. 278) that I am opposed. I do not possess Mr. McCurrich's knowledge (Oct. 17, p. 496) of his activities in the discussions with the Government. I am quite aware that he was chosen by the Society of Medical Officers of Health—a component of the Representative Committee. I carefully made no reference to his having been chosen by anyone. The B.M.A. did choose at least one member of that Society and others whose views in the past have closely corresponded with those of the M.O.H. group. I still maintain that men with such views should not be elected to the future negotiations committee. It seems ludicrous to have them when unity of outlook and purpose is essential on so vital a committee.

The drawing of his obviously false inference gave Mr. McCurrich the opportunity to write a letter in which he lifts the edge of the veil which, I believe, perhaps in ignorance, is still tightly drawn over the discussions between the Representative Committee and the Government. I wonder who authorized this? Mr. McCurrich complacently states that "they [M.O.H. group] presumably will let the G.P.s settle what they want." Will they? I glean from Dr. Buchan's letter that the M.O.H. group desires full State medicine and to control it, but there is no need for haste. I would be among the first to agree with Mr. McCurrich concerning Dr. Buchan's knowledge of his job and of the administration of Government Departments. The overlappings and confusion in these various Departments should be straightened out, in spite of the fact that they are notoriously jealous of the scope of their administration.

It is not with the integration of the various Departments and the Public Health Services that I am particularly concerned. I would leave that to Dr. Buchan and others like him who know about it and who are capable of dealing with it. Such men should be on the Government side of the fence when negotiations begin. It is in the future position and status of the general practitioner consultant group that I am interested. Their representatives on any future committee should be "elected"; and to give doctors a proper opportunity of voting correctly candidates for election should issue a manifesto stating clearly their views. The present official position of any doctor or surgeon in any society should not make him *sine qua non* a member of this vital committee.

It is quite possible that by holding such elections some experienced men may be passed over, but a committee so elected, with a clear policy and backed by the profession, will be able to negotiate with strength. So it seems to me now the discussions are over.—I am, etc.,

Bradford. DONALD WATSON.

The Human Side of Medicine

SIR,—So generous was the review of my book *The Future of Medicine* (Oct. 23, p. 513) that I hesitate to disagree with it in any way, but there are two points I think I ought to make clear. Dr. Alfred Cox speaks of "the somewhat inhuman attitude of the convinced Socialist," and against this I must protest. If there is one thing which marks the Socialist case off from others it is the fact that it is more human and more humane than any other. Writing a very small book on such a large subject one necessarily has to compress, but I thought I had managed to make my writing reflect my own intense desire for an improvement in the general conditions of the great majority of individuals who comprise the community we call Great Britain. Dr. Cox can be assured that I have tried out the ideas expressed in *The Future of Medicine* on many audiences of ordinary common folks in Lancashire, Yorkshire, and many other parts of the country, and I have never met with anything but the most enthusiastic support.

A second minor point is that Dr. Cox puts into quotation marks the phrase "more likely to be treated as a human being than in a voluntary hospital," and says that I made the statement on page 42 about the patient in a public hospital. I cannot find these words on page 42, or on any other page of the book. The phrase, which he has evidently paraphrased, was a quotation from the well-known report of P E P, which actually stated that in the hospital of a local authority a patient "is treated less as a case and more as a human being."

These two points are not so far divorced as one might imagine: they are both concerned with the human side of medicine, and it is obvious that observers differ as to their interpretation of what is human treatment. I believe that the change over from an individualistic system of medicine to a comprehensive national service will give us the opportunity to humanize completely the relationship between patient and doctor, and at the same time to raise the efficiency of our medical services to a point where our existing knowledge can be fully applied.—I am, etc.,

Richmond, Surrey. D. STARK MURRAY.

Obituary

ERIC PRITCHARD, M.D., F.R.C.P.

Eric Pritchard, who died at Exmouth on Oct. 20 after a long illness, was widely known for his work, extending over thirty years, in the cause of infant welfare. He was a pioneer in many aspects of child hygiene, a brilliant organizer of infant care, and a lecturer and writer of distinction, but his crowning work was his fourteen years' medical directorship of the Infants' Hospital, Vincent Square, Westminster. This post, to which he was appointed in 1922, was rather an uncommon one in British hospitals. It was created to meet the need for a hospital dealing exclusively with children, which, like other hospitals of the kind, had suffered from the diversion of public attention during the years of the last war. When, owing to Pritchard's efforts and those of the generous friends whose sympathy he enlisted, an annexe was opened, bringing up the accommodation to 100 beds and the new out-patients to 3,000 a year, it claimed to be the largest hospital of its kind in the British Empire.

The Infants' Hospital remains in a sense Pritchard's monument. Those who went round the new extension under his guidance were impressed not more by the originality of the design and planning than by the enthusiasm of the medical director. The arrangements for ensuring light and ventilation and avoidance of cross-infection, the open-air balconies to which every ward and wardlet had access, the provision of a locker for each infant, with all toilet requisites and thermometer, the clinic for deaf and partially deaf children, everything from the special floor to the special ceiling betokened Pritchard's mind. Most of all he delighted in the lecture hall.

This was a very unusual apartment, presented by Sir Robert Mond as a psychological experiment in the influence which beautiful surroundings might have upon the words of a lecturer, and especially upon the responsiveness of his audience. It had exquisitely carved panelling, fretted roof, and delicately traced lattice windows, and Pritchard confessed that when he first saw it the attractions of its rostrum for teaching purposes contributed largely to his acceptance of the post of medical director. Here for fifteen years he gave postgraduate lectures in connexion with the Fellowship of Medicine and the London Public Medical Service—three courses a year, each course consisting of at least twelve lectures. Before this, from 1909 to 1922, he had given short courses at the Queen's Hospital for Children, Bethnal Green, to which he was consulting physician, and even earlier still, in 1906, he had begun similar courses of lectures at St. Marylebone General Dispensary, where he was first medical officer to the first infant welfare clinic in London to be started by voluntary effort. Altogether he claimed to have given at least 1,500 lectures on child care.

George Eric Campbell Pritchard was born at Freshwater, Isle of Wight, in September, 1864, the son of the Rev. Charles Pritchard, D.D., Savilian Professor of Astronomy at Oxford. From Clifton College he went on to Oxford, where he took his B.A., with first-class honours in physiology, in 1887. He went for his medical training to St. Mary's Hospital, London, where he held a university scholarship, and qualified in 1892. In 1899 he proceeded M.D., and in 1926 became Fellow of the Royal College of Physicians. He also spent some time in study at the University of Berlin. Quite early in his career he devoted his attention to paediatrics, and for three years he was medical inspector of schools for the L.C.C. In due course he became a consulting physician in Marylebone and held several hospital posts. For some years he was paediatrician to Queen Charlotte's Maternity Hospital. Another post he greatly valued was that of consulting physician to the Sunshine Homes for Blind Babies, a project of the National Institute for the Blind.

It is not easy to catalogue the work of a more public kind which Eric Pritchard carried out for the medical supervision of the child in sickness and the preventive programme of the child welfare services. The steady decline in infant mortality during the last thirty years cannot be ascribed to one cause, and certainly not to one man, but among the names of those, apostles, educators, organizers, who helped to bring it about, that of Pritchard would be conspicuous. The offices he held at one time or other, to all of which he gave fully of his energetic and conscientious personality, show the concentration of his interest. He was honorary secretary of the National Association for the Prevention of Infant Mortality and of Child Welfare, chairman of the Association of Infant Consultations and Schools for Mothers, and of the executive committee of the National Baby Week Council, president of the British Paediatric Association, and vice-president of the Child Study Society. He had been president also of the Section for the Study of Disease in Children of the Royal Society of Medicine; and in the British Medical Association, of which he had been a member for nearly forty years, he was vice-president in 1923, and president ten years later, of the Section of Diseases of Children.

Pritchard's literary output was considerable. His *Physiological Feeding of Infants and Children* passed through several editions, and he wrote other books. After his retirement he published *The Infant: a Handbook of Modern Treatment*, written for occasional reference by the general practitioner. "Infancy" he interpreted as meaning the first five years of life. He never hesitated to be unorthodox if he thought that the principles of child health demanded it. His instructions to nurses and to "nannies" may sometimes have been resented as "new-fangled notions," but those concerned came to admit that there was a great deal in "what Dr. Pritchard said." He was specially interested in the work of the Wellgarth Nursery Training College in seeing that those who had to deal with babies and young children received adequate training in nutrition and hygiene. He himself was not only learned in the principles of paediatrics, but he had a remarkable "way with children" which accounted in no small degree for his success.

A correspondent writes: Of Eric Pritchard the clubman, the bridge player, the *bon viveur*, some brief record should remain. To this side of life he brought an unfailing zest; if his bridge calls erred on the side of undue optimism, he was never cast down by defeat, and his glee was manifest when he did pull off a slam bid, especially if it was accomplished through a lucky opening lead or a series of bold finesses. He had a schoolboy flair at inventing nicknames for his fellow clubmen, and these had a habit of sticking; they often embodied personal peculiarities; but the victims rarely felt annoyed, as they were obviously concocted in a spirit of good-natured fun. His judgment of vintage port was retained into old age. Occasionally hot-tempered, and apt to be both mordant and emphatic at such times, he could always be placated by a soft answer.

A. PIRIE WATSON, CH.M., F.R.C.S.ED.

We regret to announce the death, at his home in Douglas Crescent, Edinburgh, on Oct. 22, of Mr. A. Pirie Watson, for many years a leading surgeon and teacher of surgery in that city. He had been on the honorary staff of the Edinburgh Royal Infirmary since his election as assistant surgeon in 1919, and only two days before his death he was re-elected to the Council of the Royal College of Surgeons of Edinburgh, of which he became a Fellow in 1911.

Alexander Pirie Watson was born at Aberdeen in 1880 and was educated at Trinity Academy, Leith, and Edinburgh University, where he graduated M.A. in 1903, M.B., Ch.B. in 1908, and Ch.M. with gold medal in 1911, in which year he won the Syme Surgical Fellowship and the Chiene Medal in Surgery. From 1908 to 1914 he held junior posts at the Edinburgh Royal Infirmary, and for 14 years he was assistant to Prof. Alexis Thomson in the department of surgery at the university. Mr. Pirie Watson was closely associated with the Leith General Hospital during the past 24 years, where he was successively pathologist, assistant surgeon, and surgeon. He had held a commission in the Territorial Army for years before the last war, and in 1915 went over-seas with the 52nd (Lowland) Division. He served with the 4th Royal Scots throughout the Gallipoli campaign; later he became A.D.M.S. of the Division and took part in Egypt in the defence of the Suez Canal and thereafter in the Palestine and Syrian campaigns. He was present at the capture of Jerusalem and commanded a mobile unit, and for his services in these campaigns he was twice mentioned in dispatches and received the O.B.E. (Mil.). On returning to civil life he was promoted lieut.-colonel in command of the 11th (2nd Scottish) General Hospital in 1925, and later colonel and A.D.M.S. of the 52nd Division, and received the Territorial Decoration.

Early in his career Mr. Pirie Watson made a close study of the treatment of fractures. He contributed articles on the treatment of injuries to Murphy's *Practical Encyclopaedia*, on fractures and dislocations to Sorapure's *Dictionary of Therapeutic Agents*, and on amputations to Miles and Wilkie's *Operative Surgery*, also a number of papers to the *Edinburgh Medical Journal*. He had been a member for many years of the British Medical Association, and of the Edinburgh Medico-Chirurgical Society and the Edinburgh Pathological Club, and he was a Fellow of the Association of Surgeons of Great Britain and Ireland.

Dr. WILLIAM ROLLAND died at Bolton on Oct. 15 at the age of 59. By his death the town and the Royal Infirmary sustained the loss of a practitioner who had played a most important part in the medical life of the community. Owing to the fact that he had been an assistant to Prof. Muir of Glasgow, he was able in 1911 (when appointed to the honorary staff of the Bolton Royal Infirmary) to start the pathological department, which has grown from its humble one-room beginning to the up-to-date laboratories which house its activities to-day. Rolland also initiated the medical side of the hospital and acted as honorary physician; there also he worked hard and showed himself to be a careful and conscientious clinician; but it was as a pathologist, and perhaps especially as a bacteriologist, that he achieved an almost unique position. Lancashire has now and then produced, in its provincial towns, a doctor of distinction; everyone remembers Mackenzie of Burnley, and one ventures to think that Rolland of Bolton is equally entitled to remembrance for the great work he did in making the pathological service of the Royal Infirmary the foundation for all the clinical progress that has since been made there. During the last war he served from 1915 to 1918 as pathologist at No. 24 General Hospital, France. He leaves a wife and son, Charles, who is a final-year medical student; his younger son, Graham, was killed recently on active service in the R.A.F.—J. L. F.

Dr. WILLIAM STEVEN of Featherstone, nr. Wakefield, died on Oct. 15 at the age of 81. He was a native of Forfarshire and graduated M.B., C.M. at Edinburgh in 1886. Fifty-seven years ago he went to Featherstone as assistant in the practice of which he later became the head. No one was better known in the district or among his professional brethren than he. He was M.O.H. for the district and took a very keen interest in all public matters connected with his profession. For fifty years he was an instructor and examiner for the Order of St. John of Jerusalem, and at the time of his death was an Officer

of the Order. From 1911 until he retired a year ago he was a member of the executive council of the Wakefield, Pontefract, and Castleford Division of the B.M.A., and during the same period represented the Division on the council of the Yorkshire Branch. On more than one occasion he was the local representative to the Annual Representative Meeting, and from 1922 to 1926 he was chairman of the Division. When the National Health Insurance Act came into force he took a leading part in setting up the local machinery, and was a member of the first insurance committee in the West Riding, remaining so until his death. He was also a member of the West Riding Local Medical and Panel Committee from its inception and was its chairman for some years. Steven was a person of much charm and had a great capacity for friendship. He leaves a widow and three daughters. He had a pardonable pride in the fact that all three daughters are graduates in medicine; one, Dr. Marjory Steven, continues as a partner in her father's practice. E. H. M. writes: To an erstwhile assistant of Dr. Steven's, it seems impossible that he should have left the scene of his many years of work—a scene in which the new assistant found him a much-respected institution. I look upon my days under his roof as among the happiest days of my life. Dr. Steven's methods of work and leisure were a model that I have tried to copy for seventeen years, but, I regret to say, have never been able to carry out as well as he. His routine was invariable, his meal-times were inviolable, and woe betide the tardy patient who arrived a moment after the surgery was due to finish. In spite of a large practice he always had time to read the *Practitioner* and the *B.M.J.* between tea and surgery, yet no patient was ever missed and no visit ever skimped. The guidance and advice, the many useful points gathered in his long experience and passed on so freely to his juniors, were priceless to a youngster fresh from his medical school, and were given in a way that meant they were never forgotten. He was an outstanding example of the best type of family doctor and a great inspiration to all who knew him.

Dr. JAMES BENNETT of Walton, near Warrington, who died in July last, was a student of Owens College, Manchester, and qualified as M.R.C.S., L.R.C.P. in 1897, taking later the D.P.H. A former colleague sends the following appreciation: Dr. Bennett was an exceptionally kind-hearted man where the sufferings of others were concerned, so much so that he was unable to continue his course at Owens College for a time; but after a short spell in business the call of healing was so strong that he returned to medicine. He went into general practice in a district with which his family name was strongly associated and where he became highly respected. After the last war he turned largely to public health work as M.O.H. for three rural districts and as public vaccinator for Warrington Borough and Rural District. His interest in this work was appreciated, and he had been president of the Association of Public Vaccinators. He interested himself in the composition of beer and startled brewers by finding traces of arsenic in many specimens; this proved to be a contaminant of one of the ingredients. He was made a J.P. for the county and thus his work for the benefit of others was still further increased. He had painful illnesses before the last war and for the latter years of his life. His fatal attack began while he was driving some miles to give a lecture on first aid to help a colleague; he gave the lecture without complaint and died some hours later. Dr. Bennett was always anxious to alleviate suffering and to increase the health of mankind, and to help his colleagues and advance the dignity of his profession. On his retirement in 1939 from the post of M.O.H. a public meeting was held and he received a presentation.

Dr. Mary M. Patterson writes: As a colleague of Dr. HANNAH PERRY ANDERSON, whose obituary notice appeared in the *B.M.J.* of Oct. 23, I would like to add a word of appreciation. Dr. Anderson was a remarkable woman in many ways. She did not enter the medical profession until she had reached an age when less active and alert women are contemplating a life of leisure and retirement. Already she had lived through a very full life, and had travelled all over Europe when she accompanied her husband, Professor Anderson, to his many and varied scientific gatherings, when she met most of the leading scientists of the beginning of the century. When Dr. Anderson became a widow she at once commenced her medical studies with the ardour and enthusiasm of youth. It was a new adventure to her, and to the last hour of her life it remained an adventure. She was eager and ready for any phase of her work and enthusiastic in the work and aspirations of the younger members of the profession. Her breadth of view, her wholesomeness, her joyous optimism, inspired patients and colleagues alike. Like many another, I mourn the loss of a brave, staunch, and trusty friend.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Oct. 14 the following medical degrees were conferred:

B.M., B.Ch.—T. Stapleton, *G. F. Bader, *T. E. S. Stowell, *A. J. Watkin, *C. E. Davies, *(Mrs.) Helen M. C. Morley.

**In absentia.*

UNIVERSITY OF LONDON

The following candidates have been approved at the examination for the External Diploma in Clinical Pathology: H. S. Kellett, C. P. Warren.

UNIVERSITY OF EDINBURGH

The income of the Lawrence M'Laren Bequest Fund for the year 1943–4 has been awarded to Erwin Stengel, M.D.Vienna. In terms of the bequest the recipient is required to undertake research on brain and nerve troubles, to be carried out under the supervision of the professor of psychiatry.

UNIVERSITY OF GLASGOW

At a graduation ceremony on Oct. 23 the following medical degrees were conferred:

M.D.—[1]G. Forbes, [2]G. G. Robertson, I. S. McGregor, Elizabeth A. Marshall.

M.B., Ch.B.—[2]D. M. Mackay, [2]R. C. Curran, [2]W. Phillips, [2]R. S. Duff, [3]C. Brown, [2]May B. Paterson, [2]W. M. Lancaster, [2]T. D. V. Lawrie, [3]J. C. C. Kelly, G. Anderson, M. C. Anderson, J. A. Barclay, J. B. Barr, W. P. Barr, J. Bell, J. A. G. Bisset, J. J. Bissett, Katherine H. Broadfoot, A. S. Brodie, A. K. Brown, G. S. Brown, Magaret T. Brown, R. Brown, A. S. Caldwell, Catherine P. Cathcart, J. S. Chapman, E. A. Chisholm, Catherine E. P. Clark, J. B. Clark, J. A. Clarke, G. M. Crawford, Agnes M. K. Culver, W. Cunningham, A. B. McL. Currie, H. Currie, T. Dunbar, A. M. Fairlie, Isabella, M. B. Forbes, May C. Forbes, J. M. Fowler, J. Fraser, J. MacD. Fraser, S. Galbraith, J. D. Galletly, J. B. Geates, G. S. Hargrave, J. Harper, C. Harris, J. T. Hutchinson, J. S. F. Hutchison, Mary C. Keter, H. A. Lang, T. L. Linn, A. Low, Doris A. R. Lunn, M. Macaulay, A. G. McCarey, D. McColl, A. McL. McDonald, W. C. MacDonald, J. McDowall, Agnes E. Macfarlane, Margaret C. McGowan, Agnes M. Macgregor, A. G. Macgregor, Margaret W. Macgregor, W. Macintyre, A. Mackay, Elizabeth M. Mackie, N. C. Mackillop, Mary B. MacKinnon, I. Macleod, D. A. Macpherson, Janet E. McPherson, N. McSwan, J. F. Mair, M. Marlborough, J. J. Marlow, Dorothy M. Marshall, Margaret Marshall, J. Mathieson, R. S. Menzies, Margaret H. Miller, R. M. Mitchell, H. H. Morrison, D. E. Munro, H. G. Munro, Margaret E. Munro, W. Murray, Alys P. Nelson, Charlotte S. Nimmo, J. H. Noble, Rosemary O'Hare, H. M. Owen, G. W. H. Paterson, Marjorie M. Paterson, I. F. Pirie, E. J. R. Primrose, I. H. R. Rae, Jessie M. Ramsay, T. A. Ramsay, D. A. Rawson, Jessie P. M. Robertson, A. F. Ross, Agnes R. Russell, Sheenah J. McK. Russell, J. G. Scott, I. R. Simpson, D. H. Singleton, G. A. Smart, T. G. Smillie, Anne L. S. C. Smith, F. G. M. Smith, J. MacK. Sutherland, J. Telfer, J. Thompson, W. A. Todd, D. C. Watt, T. A. Watt, D. Wightman, G. Will, J. Williamson, T. A. Wylie, Nora Yates.

[1] With high commendation. [2] With commendation.

The Brunton Memorial Prize was awarded to D. M. Mackay as the most distinguished graduate in medicine of the academic year 1942-3. R. A. P. Brown gained (*a*) the West of Scotland R.A.M.C. Memorial Prize for the highest aggregate marks in surgery, medicine, and midwifery in the final M.B., Ch.B. examinations held during the academic year 1942-3; and (*b*) the Stockman Medal for the highest aggregate marks in the examinations in materia medica and therapeutics and medicine, excluding paediatrics. The Macewen Medal in surgery was awarded to R. C. Curran for the highest aggregate marks in surgery in the final M.B., Ch.B. examinations. J. A. Barclay gained the John W. Weir Prize for the highest marks in midwifery and diseases of women.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly Comitia held on Oct. 28, with the President, Lord Moran, in the chair, Dr. John Parkinson, Dr. George Riddoch, Dr. Henry Cohen, and Dr. Janet Vaughan were elected Councillors.

The following were elected Representatives of the College: Dr. C. M. Hinds Howell on the Committee of Management of the Conjoint Board; Sir Comyns Berkeley on the Council of the Central Midwives Board; and Dr. Otto May on the British Social Hygiene Council.

Two important Interim Reports on Social and Preventive Medicine and on Psychological Medicine were received. [The recommendations of the two Committees were printed in last week's *Journal* at p. 553.] Sir Edmund Spriggs was appointed Harveian Orator and Dr. C. Bruce Perry the Bradshaw Lecturer, both for 1944, and Dr. H. Stanley Banks as Milroy Lecturer for 1945. The Jenks Memorial Scholarship was awarded to D. G. M. Hills, late of Epsom College, and Mackenzie-Mackinnon Scholarships to Miss J. M. Dollar and Miss S. M. Draycott. Dr. L. G. Parsons will deliver the First Charles West Lecture on "The Prevention of Neonatal Disease and Neonatal Death" on Tuesday, Nov. 16, at 2.15 p.m., at the College.

The following having satisfied the Censors' Board were elected Members of the College:

Enid I. M. Addenbrooke, M.B.; C. Bastible, M.D.; J. A. Black, M.B.; Joyce L. Chamberlain, M.B.; P. J. Collard, M.B.; A. H. C. Couch, M.B.; D. M. Dunlop, M.D., F.R.C.P.Ed.; P. Forgacs, M.B.; O. F. Garai, L.R.C.P.; L. Greenfield, M.B.; P. Harvey, M.B.; W. H. Helm, L.R.C.P.; P. Jones, M.B., R.N.; H. A. Leggett, M.D.; V. C. Medvei, M.D.; F. T. Page, M.B.; J. A. Fraser Roberts, M.D., D.Sc.; A. Wardale, M.B., F.R.C.S.; D. Weitzman, M.B.

Licences to practise were conferred upon the following 197 candidates (including 24 women) who had passed the Final Examination

in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws:

A. R. Anderson, P. R. Apperly, P. G. Arblaster, P. E. Baldry, M. A. Basker, K. H. Bassett, J. S. Battersby, W. C. H. Bell, S. B. Bennett, W. E. J. Bennett, L. Bernstock, G. E. R. Bibbings, H. R. Blades, R. A. Blyth, L. S. A. Boothroyd, M. P. Bourke, W. M. de C. Boxill, R. S. Bradbrook, P. R. Bromage, V. S. Brookes, D. H. Broughton, A. E. Brown, W. F. Buchanan, Dora Buckley, R. R. Burn, D. Canter, A. H. D. Capper, Eileen M. Carey, R. M. Chambers, F. B. E. Charatan, P. A. H. Clements, E. R. Cole, Lorna Cooke, Margaret L. Cox, K. D. Crow, S. M. F. Curé, M. J. Cutler, P. Dawson-Edwards, R. F. A. Dean, E. W. Deane, F. Denny, C. J. Dewhurst, R. I. Dixon, K. W. Dodd, M. C. H. Dodgson, C. Dryburgh, D. J. Du Toit, G. C. D. Dutton, J. R. Dyer, C. G. Edwards, E. M. Edwards, A. G. Ellerker, L. Erin, M. Ernest, D. H. L. Evans, Elinor M. Evans, R. H. J. Fanthorpe, S. C. Farman, A. D. J. Farquharson, D. A. Fermont, J. H. Ferries, J. J. Fleminger, Mary Francis, G. J. F. Fryer, C. O. Fung-Kee-Fung, Y. Y. Gabril, R. B. Gaze, S. Gee, L. M. Gerlis, E. C. Gibson, K. L. G. Goldsmith, R. A. Goodbody, L. N. Gould, M. G. Gould, K. T. Graham, G. Grant, C. J. S. Green, Sheila M. E. Grew, G. A. Griffin, E. G. Hall, T. Hanley, F. S. Harlow, A. D. Harris, J. N. Harris-Jones, R. H. Heptinstall, A. J. H. Hewer, Eva M. I. Hick, Reba N. G. Holloway, J. C. S. Holmes, J. W. Honey, J. E. Hotchin, Sheila M. Howarth, Lilian Howell, R. A. Hudson, P. H. Huggill, J. R. Ivey, R. F. Jackson, H. B. Jacobs, B. R. James, G. M. L. James, F. W. Johnson, G. T. Johnson, D. G. Jones, P. F. Jones, P. H. Jones, W. K. Jones, A. J. Jordens, E. C. B. S. Keat, H. B. Kelly, P. H. Keppich, Irene S. King, A. Knight, T. Koonvisal, R. H. N. Lake, Joan E. M. Lambert, P. G. Large, B. M. Laurance, M. S. Laurie, S. Levy, Ninian Lewis, W. D. Linsell, Patricia M. Lloyd, J. A. Loveless, Margaret E. Lowry, G. MacGregor, B. H. McGuirk, K. M. Mackenzie, R. M. Mackenzie, Anne I. Mackessack, S. A. Marsh, W. E. S. Marshall, R. G. May, J. R. M. Miller, K. H. Miller, R. D. Millward, M. E. Minchin, Ruth S. Mitchison, G. O. Morgan, I. F. K. Muir, N. I. Nash, E. Nassau, G. A. Neil, M. S. Novis, J. E. Oliver, J. M. Pallot, Diana G. Paradise, J. P. Partridge, A. D. Payne, J. O. Pearson, B. J. Peck, H. P. Phillips, R. M. Phillips, Pauline M. Philpott, Mildred I. Pott, C. A. Pragnell, J. E. L. Price, V. W. Pugh, Denise A. Pullen, Celia M. Rapport, D. A. C. Reid, J. J. Rivlin, J. W. Robb, D. G. Roberts, M. M. Rose, D. Rosenberg, M. H. Russell, N. H. Seaton, D. L. Scott, M. Seifert, J. C. Selnes, J. H. Sherrey, L. S. Simons, K. H. Smith, W. H. Smith, J. L. Souster, Ethel M. Spedding, I. F. R. Sutherland, C. E. Sweetnam, K. B. Thomas, D. W. Townley, J. R. Trounce, K. A. D. Turk, H. R. Vincent, B. A. Ward, J. S. Watson, W. A. Watson, P. L. Watts, J. Wedgwood, G. P. West, R. G. White, T. A. White, K. C. Willett, H. B. L. Williams, O. H. E. Williams, T. C. P. Williams, A. M. Wood, C. F. Ziervogel.

Diplomas in Child Health (eighteen) were granted, jointly with the Royal College of Surgeons of England, to the candidates whose names appear in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of Oct. 30 (p. 562).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College held on Oct. 20 the following office-bearers were elected for the ensuing year: *President*, Prof. R. W. Johnstone, M.D., F.R.C.O.G. *Vice-President*, Mr. J. W. Struthers. *Secretary and Treasurer*, Mr. K. Paterson Brown. *President's Council*, Mr. James M. Graham, Sir John Fraser, Bt., Mr. A. Pirie Watson, Dr. G. Ewart Martin, Mr. Francis E. Jardine, Mr. W. Quarry Wood. *Representative on the General Medical Council*, Mr. Henry Wade. *Convener of Museum Committee*, Mr. W. Quarry Wood. *Librarian*, Dr. Douglas Guthrie.

The following candidates, having passed the requisite examination, were elected Fellows:

W. Cowell, E. Griffiths, W. G. Holdsworth, A. M. Howard, S. L. Mann, A. G. C. Neill, St. J. G. O'Connell, C. C. Slack, H. B. Young.

The Services

Lieut.-Col. H. H. Elliott, C.I.E., M.C., I.M.S., has been appointed surgeon on the personal staff of the new Viceroy of India, Lord Wavell.

Capt. (temp. Major) A. Crerar and Capts. L. Herbert, J. E. Miller, and E. L. Moore, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Sicily.

The Efficiency Decoration of the Territorial Army has been conferred upon Lieut.-Col. (temp. Col.) (local Brig.) A. H. Whyte, D.S.O.; Lieut.-Cols. (temp. Cols.) A. T. B. Dickson, O.B.E., and I. M. Pirrie, M.C.; Major (temp. Lieut.-Col.) (acting Col.) A. H. Macklin, O.B.E., M.C.; Majors (temp. Lieut.-Cols.) J. B. Forsyth, R. M. Gordon, A. B. Kerr, W. R. Logan, R. W. Power, and W. B. Sprunt; Majors W. C. Armstrong, R. E. Holme, W. H. M. Jones, W. L. Lamb, M. Stoddart-Scott, C. M. Willcox, and J. Wright, R.A.M.C.

The Commander-in-Chief of Bomber Command has commended the action of a medical officer, Flying Officer A. R. H. Mills, in swimming a river to the rescue of some stranded airmen. When a bomber crashed by the side of one of the main rivers of the Midlands F/O Mills entered the water and swam across in the dark. He managed to release the dinghy, and first ferried the fit members of the crew across. He then procured stretchers and safely transferred three injured men to an ambulance.

CASUALTIES IN THE MEDICAL SERVICES

Lieut.-Col. Stewart Brown, R.A.M.C., was killed in action at the age of 31 in the Central Mediterranean area while tending wounded. He was educated at George Watson's College and the University of Edinburgh, where he graduated M.B., Ch.B. in 1935. At the Army Medical College, Millbank, he was medallist in military medicine, then saw service on the North-West Frontier, and later in Palestine and Egypt. He was promoted major and attached to the 51st (Highland) Division while being re-formed in this country, went over-seas again with the Division, and served all through the campaign in North Africa to Tunis. He was then promoted lieut.-colonel and given command of the City of London Unit in the Middle East.

Wounded.—War Subs. Capt. J. H. F. Brotherston, R.A.M.C.

Previously reported missing, now officially reported a prisoner of war.—Capt. G. F. Allan, R.A.M.C.

Prisoners of War.—Fl. Lieut. R. A. Cumming, R.A.F., Fl. Lieut. W. N. Riley, R.A.F.V.R.

Killed.—Capt. H. G. Greeves, R.A.M.C.

Killed on active service.—War Subs. Capt. R. E. K. Levick, R.A.M.C.

Officially reported died on active service.—Capt. I. G. McCall, R.A.M.C.

Medical Notes in Parliament

Mass Radiography

Mr. JACKSON asked on Oct. 14 at what intervals Mr. Brown's advisers considered it necessary to examine people by mass radiography to be satisfied that they showed no early traces of tuberculosis. Mr. BROWN said signs might pass from the radiologically imperceptible to the perceptible state in the interval between two examinations, however short the interval, and no frequency of examination could give complete security. The practical question now and for some time to come must be how to make best use of the resources available. Miniature radiography units had been supplied in England to the County Councils of London, Lancashire, Middlesex, and Surrey, and to the Staffordshire, Wolverhampton, and Dudley Joint Tuberculosis Board. Another unit had gone to Scotland. One was on the point of delivery to the Welsh National Memorial Association.

Repatriation of Disabled Prisoners

On Oct. 19 Mr. LAW made a statement on the repatriation of disabled prisoners of war. He said that two agreements had been reached with Germany which covered all those members of the armed Forces of the British Commonwealth and of the United States who had been passed by medical authorities for repatriation under the Geneva Convention. In all, there were over 3,000 seriously sick and wounded, the great majority of them members of the United Kingdom Forces, who were coming home from Sweden, as well as 1,200 or more officers and other ranks, including doctors, chaplains, medical orderlies, and stretcher-bearers. They would leave Gothenburg on Oct. 20 or 21. In addition, more than 1,000 men, members of the Dominion or Colonial Forces, would be brought from Germany to Barcelona. Nearly half of these were sick and wounded. The total number of prisoners of the British Commonwealth and Empire who would be repatriated under the present agreement was about 5,400. This number included about 170 sick merchant seamen and about 100 sick interned civilians. So far as he knew, every single prisoner eligible under the Geneva Convention was being repatriated in this exchange. He did not think that any man who had been passed by medical authorities would have been left in Germany. Between 5,000 and 6,000 German prisoners of war were being sent back to Germany by the British Commonwealth and the United States.

Representative Committee

Dr. RUSSELL THOMAS inquired on Oct. 21 how many doctors represented the medical profession in the recent negotiations in regard to the future of medical practice, and how many of these act or acted as members of any advisory or other committees or in any collective or individual capacity in connexion with the Ministry of Health or any other Department. Mr. ERNEST BROWN replied that a Representative Committee of 42 members was selected by the B.M.A. in collaboration with the Royal Colleges. His information did not enable him to answer the last part of the question exhaustively, but of the 42 representatives chosen by the profession, ten were also members of his Medical Advisory Committee. An additional three representatives assisted his Department as members of advisory committees or in an individual capacity.

Distribution of Doctors

In an answer to Mr. Henry White on Oct. 21 the MINISTER OF HEALTH said the Central Medical War Committee and its local committees, in selecting doctors to make up the quota required by the Forces, did their best to maintain an adequate medical service for the civilian population, but in some areas there must inevitably be a heavy burden on the remaining

doctors and some inconvenience for the public. For the areas most in need of help arrangements were being made through the C.M.W.C., in accordance with a recommendation of the committee presided over by Sir G. Shakespeare, for employment of suitable doctors as assistants in general practice. These would be chosen mainly from those found unfit for service in the Forces, and the powers of direction under the Defence Regulations would be used so far as appropriate for this purpose.

G.M.C. Representatives

Mr. HUTCHINSON asked on Oct. 21 why the Government had advised His Majesty to continue unchanged for a fourth year the composition of the General Medical Council, as provided by the General Medical Council (Temporary Provisions) Order, 1943. Mr. ATTLEE said this Order related only to those members of the General Medical Council elected by medical practitioners. Owing to continued absence with the Forces or on other forms of national service of a substantial proportion of the electorate, an election at present would present great practical difficulty and would imperfectly represent the views of those entitled to vote.

Equipment for Gas-and-oxygen Anaesthesia

On Oct. 21 Major C. TAYLOR asked what number of hospitals dealing with maternity cases were equipped with gas-and-oxygen anaesthetic appliances. Mr. ERNEST BROWN said 47 local supervising authorities in England and Wales provided the apparatus, in some cases for domiciliary use. Of the 88 emergency maternity homes under the Government evacuation scheme 60 had been supplied with machines for the administration of gas-and-air anaesthesia. He had no information as to the provision of this equipment in voluntary hospitals.

Cholera and Deaths from Famine in India

Mr. AMERY stated on Oct. 21 that cholera had been reported in various parts of India, but he had so far no indication of any widespread outbreak, nor of special difficulties experienced by Provincial Governments in dealing with outbreaks of this or of any other disease. He had no recent report of shortage of drugs or medical supplies for civilian use. As regards deaths by famine, figures were incomplete and unreliable. In Calcutta mortality was reported to be twice the normal for the time of year. Between mid-August and mid-October about 2,000 persons suffering from malnutrition died in Calcutta hospitals.

Typhus in North Africa.—During last typhus season in North Africa there were 20 cases among British troops, of which six were fatal. No cases have been reported from Sicily during operations in that area. Some 30 cases of typhoid fever have been reported from North Africa.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* notifications of scarlet fever and measles continued to mount, by 75 and 94 cases respectively, while decreases were recorded for diphtheria 25 and dysentery 10. The largest local increase for scarlet fever was in Staffordshire with 31 more cases, and for measles, in Norfolk, also with 31 more.

The total number of cases of dysentery is still high—253. The largest of the new outbreaks was in Bedfordshire, Biggleswade R.D. 15. In Kent notifications fell from 59 to 12, and in London from 52 to 46. Several areas recorded rises, important centres of infection being Yorks West Riding with 26, Lancashire 22, Middlesex 22, Somerset 19, Warwickshire 13, and Leicestershire with 10 notifications.

In *Scotland* diphtheria went up by 31 cases, scarlet fever by 31, and acute primary pneumonia by 23; dysentery was down by 34, and whooping-cough by 24 cases. The higher incidence of diphtheria was confined to the western area; the rise in scarlet fever and pneumonia was fairly general. Almost half of the cases of dysentery were reported from the two cities of Glasgow 14, and Edinburgh 13.

In *Northern Ireland* there were 23 more cases of scarlet fever: 82 of the 118 notifications were recorded in Belfast C.B. The principal centre of diphtheria infection was Londonderry C.B., where 30 of the 37 cases occurred; this city is experiencing the worst outbreak for ten years.

In *Eire* the incidence of diphtheria remained high with a rise of 6 cases; 26 were reported in Dublin C.B. during the week. The higher figure for scarlet fever was due mainly to an outbreak in Tipperary, Rosecrea R.D. 14.

The Week Ending October 23

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 3,317, whooping-cough 1,459, diphtheria 725, measles 546, acute pneumonia 579, cerebrospinal fever 46, dysentery 249, typhoid 7.

No. 41

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Oct. 16.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943 (a)	(b)	(c)	(d)	(e)	1942 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	37	1	17	2	2	59	6	20	2	—
Deaths		1	1				—	—		
Diphtheria	707	31	198	99	37	971	53	218	85	25
Deaths	7	—	2	2	1	15	1	4	2	1
Dysentery	253	46	62	—	1	165	18	78	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	5	—	—	—	—	2	—	1	—	—
Deaths		—					1			
Erysipelas			59	8	4			61	4	—
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				35					98	
Deaths	58	10	8	23	7	55	7	11	16	4
Measles	675	49	55	18	—	5,796	291	353	45	18
Deaths	2	—	—	—	—	2	—	1	—	—
Ophthalmia neonatorum	87	5	19	2	—	92	3	17	—	—
Deaths										
Paratyphoid fever	3	—	4	—	—	6	1	—	—	
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	569	33	6	—	5	608	32	2	1	1
Deaths (from influenza)	18	5	5	—	1	17	1	1	1	—
Pneumonia, primary			200	9				139	21	
Deaths		28		13	9		—		9	4
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	19	3	—	—	—	24	3	2	22	—
Deaths		—					—			
Puerperal fever		4	14		—		2	17		—
Deaths							—			
Puerperal pyrexia†	153	4	19	—	1	133	5	18	4	2
Deaths		—								
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	3,324	321	416	69	118	2,703	175	430	81	35
Deaths	2	—	—	—	—	3	—	—	1	—
Smallpox	—	—	—		—	—	—	21		—
Deaths				—	—				—	—
Typhoid fever	5	—	—	9	3	6	1	1	12	1
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	1	—	—	—	—
Deaths				—	—				—	—
Whooping-cough	1,482	121	157	13	15	907	50	34	61	8
Deaths	6	—	7	2	—	5	—	—	2	—
Deaths (0–1 year)	297	45	73	51	23	359	31	69	49	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,107	603	621	197	141	3,880	535	542	201	113
Annual death rate (per 1,000 persons living)			14·0		‡			12·2	13·4	‡
Live births	6,415	841	972	392	286	6,033	727	945	377	252
Annual rate per 1,000 persons living			19·8	25·6	‡			19·5	25·2	‡
Stillbirths	232	19	33			202	18	44		
Rate per 1,000 total births (including stillborn)			33					44		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A meeting of the Middlesex County Medical Society will be held at the West Middlesex County Hospital, Isleworth, on Tuesday, Nov. 9, at 2.45 p.m., when a clinical demonstration will be followed by papers by Mr. W. J. Ferguson on treatment of haematemesis and melaena in cases of recently perforated peptic ulcer, and Mr. D. M. Stern on treatment of stress incontinence in women. Visitors, including members of the U.S. and Canadian Forces now in this country, will be welcome.

A lantern lecture on "The Use of Plant Growth Substances" will be given by M. A. H. Tincker, D.Sc., at the house of the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, W.C., on Thursday, Nov. 11, at 7 p.m.

The London Women's Parliament is calling its fourth session on Sunday, Nov. 14, at the Bedford Theatre, Camden High Street, N.W.1. The object is to find how best to minimize the strain of war work while still maintaining production. Three subjects will form the basis for discussion: (1) Health in the factory, with special reference to hours worked, health committees, extension of welfare and medical care, ante-natal supervision. (2) Health in the borough, with emphasis on maternity provision, including more maternity beds, home helps, midwives, and maternity benefit; improvement of local health services, and a demand for a national health service as recommended in the Beveridge report. (3) Housing, with a demand for immediate control of all rents, including furnished premises, effective requisitioning of empty houses, billeting, repairs of houses, extended building programme, and an acceptance of the L.C.C. Plan.

The programme of lectures arranged by the Royal Institution, 21, Albemarle Street, W., includes two Friday evening discourses at 5 p.m.—one on Nov. 26 by Sir Joseph Barcroft, F.R.S., on the preservation of foods by drying, and another on Dec. 10 by Prof. H. W. Florey, F.R.S., on the development of penicillin for medical uses. A course of lectures on progress in the treatment of infections is being given by Sir Henry Dale, P.R.S., on Tuesdays, Nov. 9 and 16, at 5.15 p.m.; and at the same hour on Nov. 23 and 30 and Dec. 7 and 14 Prof. J. C. Drummond will give a course on food problems of the post-war years.

The names of Dr. Irene Marie Holden MacAdam, wife of Dr. W. MacAdam, professor of medicine at Leeds University, and of Dr. Joseph William Silversides, honorary secretary of the Leeds Joint Council of Industrial Medicine, have been added to the Commission of the Peace for Leeds.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Cause of Cancer Cachexia

Q.—*The wasting in malignant disease is far in excess of the extent of the growth, which suggests a toxaemia. Has a toxin been yet discovered?*

A.—A toxin has not been discovered. The important known causes of cachexia are sepsis and interferences with organic functions, as, for example, by pressure or obstruction.

Rapid Loss of Hair

Q.—*A man aged 32 complains that his hair is falling out at a prodigious rate. The baldness is "natural" in distribution, being situated over the crown of the head, and it has not the patchy appearance of alopecia areata. But the extreme rapidity with which it is being lost leads me to suspect an underlying factor. He has grown perceptibly balder in the two months I have known him. The scalp appears normal, and the patient is in excellent health. There is no indication of myxoedema, but I wondered if small doses of thyroid extract might benefit the condition. At the present rate of loss he should be quite bald in six months. Up to four months ago his hair was extremely thick and strong. Could you advise me as to any treatment, either local or general, that might benefit the condition, and also give me some idea of the possible cause?*

A.—It is possible that the loss of hair described is the result of a febrile illness—e.g., influenza—about two months before the fall of hair was noticed. If this is the case the hair will almost certainly return satisfactorily in a few months. If there has not been any illness, probably the trouble is a form of alopecia areata, in which case some "exclamation mark" stumps may be discoverable. Small doses of thyroid are not likely to have any effect unless there is definite thyroid deficiency. Ultra-violet light, either local to the scalp or general to the whole body once or twice a week, might be tried.

What to do with Diphtheria Carriers

Q.—*Is it necessary to isolate every diphtheria carrier who may be discovered? As the number of immunized people rises, the number of carriers must rise, and isolation and cure will be a problem of much difficulty.*

A.—The handling of the diphtheria carrier is a controversial subject. The procedure should vary according to (1) the environmental conditions, (2) the nature of the carrier state, and (3) the laboratory facilities available.

1. If a diphtheria carrier is discovered in a family or close community where there are other susceptible children, it is wiser to remove the carrier until the other children have been protected by active or combined active–passive immunization. On the other hand, isolation of the diphtheria carrier in a day-school where a high proportion of the children have been immunized is probably unnecessary, particularly if the children are under regular medical supervision.

2. The carrier state is with many children a transitory phenomenon, and children with healthy mucous membranes in nose and throat are not likely to be persistent carriers or to spread the infection. Thus, carriers discovered in the routine swabbing of ward contacts are often temporary carriers and should not be transferred immediately to an isolation hospital unless there is some obvious clinical abnormality in the upper air passages. The diphtheria carrier with nasal discharge or diseased tonsils is more dangerous, and should be isolated and treated. There is, of course, no legal power in England and Wales to remove a carrier as such to hospital, but parents can usually be persuaded of the advisability of doing so. While a temporary increase in carriers in place of clinical cases might be expected as a result of immunization (and this happened at Greenwich Hospital School), experience in Canadian and American cities has shown that after a high proportion of the children have been inoculated the carrier rate among them falls to a very low level.

3. The diagnosis of a diphtheria carrier is a joint responsibility of the physician and the bacteriologist. Swabs must be taken with care from both nose and throat and should be inoculated on a tellurite-containing medium. Organisms resembling *C. diphtheriae* should be examined biochemically, and, if necessary, by animal inoculation to find whether they are toxigenic. Unless this is done—and in many areas laboratory facilities are still inadequate for the purpose—no reliance can be placed on a report of the presence or absence of *C. diphtheriae*.

M.O.s and G.P.s

Q.—*Some time ago I saw a statement that the Ministry of Health would be pleased if local authorities could allow public health medical officers in their spare time to help out the general practitioners who are at present being overworked. I would be pleased if you could let me know when and where the statement was made and whether the local authorities were circularized concerning it.*

A.—In the House of Commons on May 20, 1943, Major Lyons (Leicester E.) asked the Minister of Health if he approved of arrangements whereby, in the present call upon medical practitioners, medical officers, both men and women, holding appointments under local authorities voluntarily agree to assist in the work at hospitals and general practices in cases of special urgency; and whether he would consider taking steps to encourage this type of arrangement in present circumstances. The Minister of Health replied: "I am glad to learn of any co-operative arrangements between medical practitioners which will help to relieve the pressure on the profession at the present time, but owing to the great variation in local conditions I do not think that I could usefully commend any particular scheme for this purpose." Major Lyons continued: "While realizing the difference in local conditions, may I ask whether the right hon. gentleman would let local authorities know that where practicable this kind of co-operative effort meets with his approval?" Mr. Brown replied: "I think that they know that, and this question will serve to spread the light further."

Sedimentation Rate

Q.—*What is considered the normal erythrocyte sedimentation rate? What is the significance of a raised rate? Does it always mean a chronic infection? If a raised E.S.R. be found by chance in an otherwise symptomless patient, what notice should be taken of it?*

A.—The normal erythrocyte sedimentation rate varies with the method used. With the Westergren method a reading of 3 mm. plasma at one hour is normal, 4 to 6 mm. is doubtful, readings between 7 and 12 mm. are probably abnormal, and higher readings are certainly pathological. With the Wintrobe method the normal sedimentation reading is 3 to 4 mm. plasma at one hour for a man, and 9 to 10 mm. or less for a woman. A raised sedimentation rate does not always mean a chronic infection. It occurs also in acute infections, in pregnancy, in anaemia, in malignant disease, in acute gout, in coronary thrombosis, etc. Menstruation does not increase the sedimentation rate in health.

If a raised sedimentation rate is found in an otherwise symptomless patient, the test should be repeated in a month's time. In the meanwhile the patient should be thoroughly examined clinically, a blood count made to see if there is any anaemia, and the chest x-rayed to exclude, so far as possible, pulmonary tuberculosis. An increased sedimentation rate indicates a pathological state, but very rarely a normal sedimentation rate is found in active pulmonary tuberculosis.

Short Stature and Endocrinology

Q.—*Apparently experimental endocrinology has been successful in producing gigantism in animals by the administration of a pituitary growth hormone. I have a patient who is worried because her two children, aged 4 and 6 respectively, are shorter than is normal for their age. The mother and her family all tend to be on the short side. The mother is anxious to know whether available pituitary preparations could be used to accelerate the rate of growth, and whether this could be carried out without any risk to the patient. The home conditions are satisfactory and the children are well fed. I of course assume that any course of treatment would be under the direction of an endocrinologist.*

A.—The pituitary growth hormone to which the questioner refers is available for treatment in man. Of one variety 2 c.cm. or more can be injected intramuscularly three times a week for a period of six weeks, and then repeated after an interval of a month. The results are variable and often disappointing. Desiccated thyroid can be given alone or in conjunction with this treatment to the point of tolerance. Testosterone may also produce an increased rate of growth, but must be administered with caution in young children. As regards the possible risk in using pituitary growth hormone, local reactions are not infrequent, and occasionally a general reaction of an allergic character may occur.

Night Frights in an Adult

Q.—*A physically healthy man of 25 has had night frights since the age of 18. They may occur once or several times a night for weeks on end, or they may not occur for a similar period. In a mild fright he shouts out, "No, no, no"; but in a severe one he bawls at the top of his voice and tries to escape from the room either through the door or window. He is a highly strung person and is energetic. He has stammered since childhood. He has a responsible position in a business firm. Bromides and phenobarbitone have been tried with only slight improvement. I should like to know: (1) Is the cause likely to be a single repressed incident occurring in childhood? (2) What are the chances of success from expert psychotherapy? (3) Can some idea of the length of treatment necessary be given?*

A.—The clinical details given in the question are insufficient to permit of more than a tentative answer.

Point 1.—It is unlikely that a single incident can be the cause of the dissociative nightmare attacks. These night frights must be regarded as a break-through of a "screen-memory," only partly repressed. Such incidents which appear in the analysis of psychoneuroses have the function of partly concealing and partly expressing the underlying predisposing conflicts in highly condensed form, symbolizing what is typical for the emotional problem. Only the full recall and analysis of the contents of these attacks can reveal the deeper causes. It is, however, safe to assume that these lie in early relationships with other people. That such relationships were not smooth is shown by two important details—the stammer and the "highly strung energetic" personality. Owing to some undisclosed present-day stress repression has failed; the emerging primitive feelings (no longer sufficiently held in check by the old defences of stammer and tense active attitude) seize upon some old or even recent "incident," which is also likely to possess significance in its own right. Often, however, such incidents are found to exist only in fantasy, which does not diminish their importance in psychotherapy.

Points 2 and 3.—The chances of successful psychotherapy are high. An acute symptom provides a strong incentive for the patient's co-operation and a ready-made portal of entry to the problem for the therapist. The terror attacks are thus likely to be resolved quickly as psychiatrists count time—e.g., in ten to fifteen sessions, with one or two applications of light hypnosis or evipan narcosis as a possible time-saving technique. At this stage the patient may wish to stop, full of gratitude for his temporary relief, but with the deeper problem probably unsolved. It is likely that the emotional trends released by reduction of the acute symptom will make themselves felt in either new symptoms or behaviour. Ideally, therefore, a longer period of treatment is called for. The patient may be glad to follow on if his circumstances and his psychological insight permit. This phase of treatment may last six months or more of regular analytic sessions. Even then, traces of stammer are likely to persist, although they will have lost much of their subjective importance. A constitutional element may be present. On the other hand, for practical purposes, in wartime especially, the short treatment only resolving the urgent symptom may have to suffice. Any expert would, however, take tactful steps to warn the patient that the job was incomplete, but that further help was possible if new discomforts should develop with which the patient could not cope unaided.

Gynaecomastia

Q.—*What are the aetiology and treatment of gynaecomastia? What are the prospects of malignant change occurring? The patient is in the late thirties and he has had the condition for about two months. Previously quite normal and absolutely no evidence of hypogonadism. On page 442 of the* JOURNAL *Dr. J. C. Jones recommends stilboestrol, while on page 403 Dr. Magee points out that stilboestrol will of itself produce the condition. The statements appear to be contradictory. Furthermore, Lacassagne has repeatedly induced mammary carcinoma by injections of oestrone in the male. In the present instance the patient only returned from the Middle East about three months ago and there is an admitted history of sexual excess, without, however, any apparent loss of power. He has acquired the habit of taking occasional doses of iodine as a "tonic."*

A.—The causes of gynaecomastia are still hypothetical, and authorities differ profoundly. The breasts are bisexual organs, which develop in girls under the influence of the female sex hormones, but not in boys, in whom the small amount of female sex hormone is more than cancelled by the production of male sex hormone. It would appear from this that the development of breasts in men could be brought about either by an increase in circulating oestrogens or a decrease in circulating androgens. There must also be considered, however, the response of the breast tissue, which is probably genetically determined. It is conceivable that in some individuals the responsiveness of the breasts to oestrogens is so great that normal circulating androgens are powerless to counteract their effects. This undue sensitivity may be due, as some believe, to a weakness in the original genetic "urge" to masculinity, for sometimes gynaecomastia is associated with other signs of mild intersexuality. The occasional occurrence of unilateral gynaecomastia is not, on this hypothesis, surprising, for an unequal response of the two sides to hormones is often seen: the breasts of a normal woman are often of unequal size, and unilateral acromegaly has been reported. This hypothesis explains the intersexual cases, those which have occurred in factories where oestrogens are manufactured, and those associated with atrophy of the testicles.

Bearing in mind that oestrogenic substances are probably produced in the testicles and adrenals, it explains the cases which have occurred in association with neoplasm of the testis, teratoma generally, and chorion epithelioma, and in Addison's disease under treatment with adrenal cortical extracts. Nevertheless it is not suggested that the hypothesis is complete. It does not, for instance, take account of the possible influence of progestational hormones in the production of some cases. I have seen the condition twice in association with mental disease, a relationship which suggests a possible diencephalic origin. No medical treatment is effective. Methyl testosterone by mouth, a rational method, has proved disappointing. Stilboestrol makes the condition worse, and, as the question suggests, may be a common cause. There appears to be no special predisposition to malignant change, but as the sight of his breasts usually depresses the patient it is advisable to remove them.

Epidermolysis Bullosa

Q.—*For about nine months, from the time of the infant's birth, I have been watching a case which corresponds accurately with Hallam's description of epidermolysis bullosa ("Brit. Ency. med. Pract.," vol. 5, p. 82) of the simple uncomplicated type. A large blister was present at birth; there were lesions present suggestive of ante-natal blistering, and the trouble still persists. Otherwise the child is very healthy. There is no history of other skin trouble in the family. We have treated the lesions with zinc oxide, starch, and boric powder, and they have healed quickly and well; but as the time approaches when the child will begin to walk, the anxiety to secure a cure, if such is possible, increases. At present even very slight rubbing results in blister formations, especially on the*

feet and forearms. I shall greatly appreciate any suggestions as to treatment.

A.—There is no known treatment for epidermolysis bullosa which can be relied on to do good. Arsenic in small doses over a long period is sometimes advised. When the patient is the product of a consanguineous marriage, blood transfusion from a donor outside the family has been suggested. But in the case described it does not sound as though either of these treatments was likely to be practicable, and reliance will probably have to be placed on protection from trauma and local treatment to the lesions as they arise.

Too Much Liver

Q.—*Is it possible to inject too much liver extract, and if so, what are the symptoms?*

A.—Apart from hypersensitivity and gout, there is no evidence of toxic effects from large doses of liver extract by injection. Amounts of 160 c.cm. have been injected intramuscularly in one week in pernicious anaemia without ill effect in the endeavour to produce a long remission; this hope, by the way, was not realized. In the treatment of sprue 20 c.cm. of liver extract has been injected intravenously every day for a fortnight and then twice weekly, again without any ill effect, and with marked benefit to cases which had resisted less strenuous treatment.

Vitamin A and the Cornea

Q.—*In minor lesions of the cornea—e.g., abrasions, removal of superficial foreign bodies, etc.—is it of any advantage to instil cod-liver oil (in virtue of its vitamin A content) in place of the customary ol. ricini?*

A.—There is no valid evidence that the local application of vitamin A has any effect at all.

The Barometer and Blood Pressure

Q.—*A drop in the barometer reading of 2 in. means a drop of 50 mm. of mercury. No account of the barometer reading is taken when a patient's blood pressure is being examined. Why is this? Does it make no difference to the reading?*

A.—Changes in the barometer make no difference to the patient's blood pressure as read with the ordinary blood pressure apparatus. It is true that the *absolute* pressure in the artery does change with changes in the barometer, but since the tension of the arterial wall and tissues balances the arterial blood pressure against the given atmospheric pressure and not against a vacuum, the absolute blood pressure does not seem to be of much clinical significance. As ordinarily read, the atmospheric pressure is the same on both sides of the mercury manometer, and therefore cancels out.

Home-preserved Meat

Q.—*The preservation of fruit has become a very simple and very popular household job, and some housewives would like to preserve meat in a similar way in order to use it when it is wanted most. Would the following method be effective and devoid of any risks of food poisoning? The meat is cooked in its own juices in the usual way. Then it is transferred with its liquid surroundings into a Kilner jar. This is heated to form a vacuum, and the meat preserved in an airtight partial vacuum as for fruit.*

A.—The home preservation of meat is decidedly much more difficult than for fruit. The degree and times of cooking of foods in glass or other containers to render that food safe from the risks of conveying disease depend on a number of factors, including the acidity of the food, the size of the containers, the temperature at which introduced, and, in particular, the rate of heat transfer through the food. For example, with acid foods (such as most fruits) less heat is required than for meat. With a largely solid food, such as most forms of meat, heat penetration is mainly by conduction, and not by convection, as in fruit, and as such is relatively much slower. These factors add to the difficulty of any satisfactory home sterilization for meat products.

The question assumes that the meat is cooked before introduction into the jar, but it has to be remembered that penetration in ordinary cooking is slow, and numerous experiments demonstrate that the interior of meat rarely reaches temperatures adequate to destroy pathogenic bacteria, and cannot be relied upon to destroy either Salmonella strains or *Clostridium botulinum*. In dealing with meat eaten fresh this is not of much practical importance, but with preserved meat, unless the subsequent heat treatment is effective, any such surviving bacteria would multiply and heavily contaminate the product, and be a possible source of food poisoning. In commercial meat canning, although the meat is cooked before introduction into the can, temperatures of about 120° C. are employed, the time varying with different factors, including the size of the can. This involves the use of pressure cookers. Such sterilization with temperatures well above boiling-point is very different from domestic heating in a Kilner jar, when the maximum temperature cannot rise above 100° C. In the early days of commercial meat canning temperatures of 100° C. were commonly employed, but were found unreliable and led to food spoilage.

The above considerations suggest strongly that the home preservation of meat products in Kilner or other similar jars is an unreliable procedure and one not safe from the risk of the meat being a vehicle for the conveyance of food poisoning.

INCOME TAX

Purchase of Share in Practice by Instalments

W. J. is about to buy a share in a practice paying for it out of income. Would such annual payments be allowed as deductions?

⁂ No. The transaction is of a capital nature and the payments do not affect the income-tax liability either of payer or receiver.

Professional Expenses

"I. R. Q." inquires whether the cost of repairing a wrist watch—"a necessary instrument in my practice"—is an allowable expense.

⁂ An expense is not necessarily allowable because it enables professional work to be carried on—i.e., the attire of a London solicitor may be more costly than that of his country colleague or a tradesman, but would not in our opinion give rise to a special claim for allowance. On the other hand a watch is used directly in medical work, and some proportion of the repairing cost might be claimable on that ground; but we doubt if an appeal would be worth while.

Board and Lodging

W. B.'s "salary is £360 per annum and board and lodgings are provided." He has been assessed on £438—i.e. £360 plus £78, which represents 30s. per week. Is that correct?

⁂ If, as appears to be the case, the contract of employment provides for a salary of £360 and for free board and lodging, the liability is on £360 only. (If the contract provided for a salary of £438, of which £78 was to be satisfied by provision of board and lodging, leaving the balance of £360 payable in cash, the income-tax liability would be on £438.)

LETTERS, NOTES, ETC.

Menorrhagia and Thyrotoxicosis

Mr. E. G. SLESINGER (London, W.1) writes: I was surprised to see in the *Journal* of Oct. 23 (p. 533), under the heading "Menorrhagia and Hyperthyroidism," the statement, "Menorrhagia is not uncommon in thyrotoxicosis," followed by the suggestion that, if local pelvic disease and blood disorders had been excluded, the menstrual disturbance should be regarded as another symptom of the thyroid dysfunction." In many years' experience of thyrotoxicosis I have never seen a case of menorrhagia due to thyrotoxicosis, nor do I believe that such a connexion occurs. The patient in question may well be thyrotoxic, but I feel sure her menorrhagia is due to some other cause, and that if throidectomy were required because of her thyrotoxic state it would not of itself cure her menorrhagia.

Resuscitation by Rocking

Colonel P. J. RYAN (A.D.M.S. Headquarters) writes: Recent articles and correspondence in the *Journal* refer to various means for "rocking" in the case of an individual apparently drowned. It is suggested that, when available, a wheeled stretcher carrier, such as is in use in the British Army, could be used with advantage for the rocking method of resuscitation. Such an apparatus is depicted in your issue of May 22 (p. 648) and a similar type in your issue of May 1 (p. 542). The patient should, however, be lashed on to the stretcher face downwards with arms outstretched, and chocks placed against the wheels to steady the carriage. A minimum of two men is required to rock this apparatus.

Transfusion into Bone Marrow

Dr. A. PINEY (London, W.1) writes: A warning is needed to amplify the answer to the question about transfusion into the bone marrow (Oct. 9, p. 471). Sternal infusions are impossible in the case of infants because there is no medullary cavity in the manubrium. Even by the age of 3 years there is very little marrow in the bone; and it is not until 7 or 8 years of age that infusion is possible. If the tibia is used for infusion in an infant the point of the needle must be downwards—i.e., towards the foot and away from the knee, so that there is no risk of damaging the epiphysis. Finally, those who are not experienced with the technique should be told that, even when the needle is properly inside the medullary cavity of the sternum, the initial rate of flow of the infusion fluid is slow—e.g., about 4 c.cm. a minute—but at the end of about five minutes the rate increases and fluid can be infused as fast as may be desired.

Correction

The sentence beginning in the eighth line from the bottom of the second column of the leading article at p. 549 in the *Journal* of Oct. 30 contains an obvious error. It should read: "But this view does *not* preclude . . ."